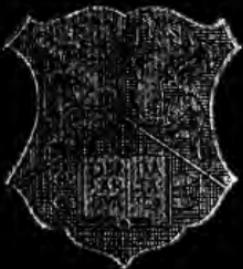


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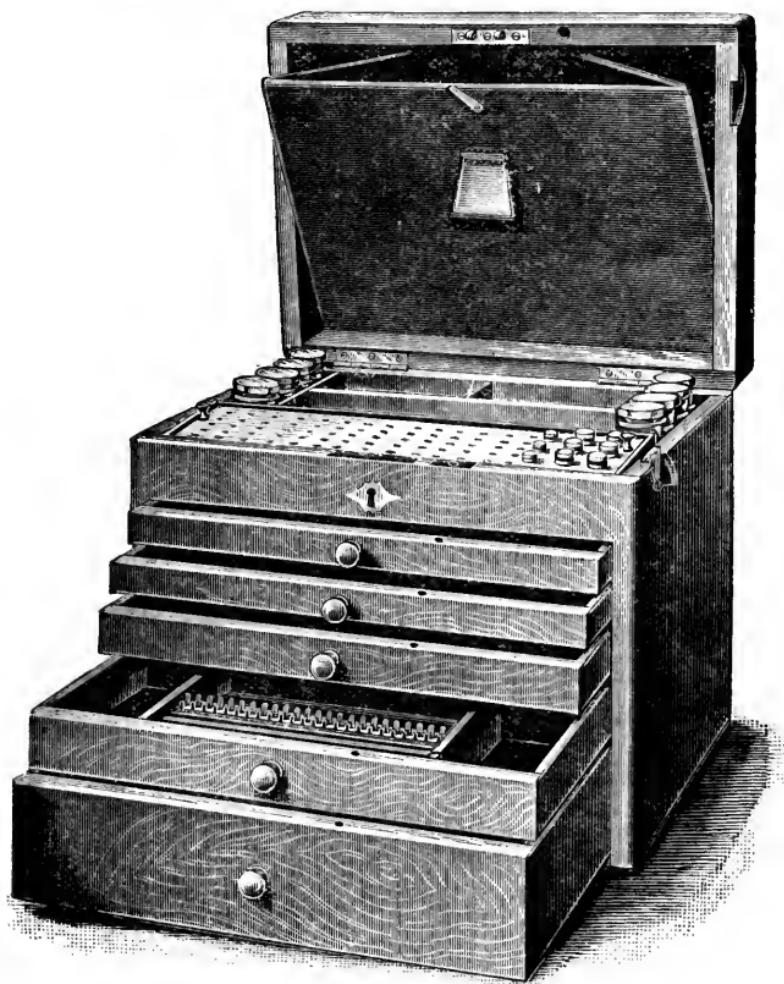
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<b>Bossuet :</b> Sermons choisis (Rébelliau) . . . . .	3 0	<b>Montesquieu :</b> Grandeur et décadence des Romains (G. Jullian) . . . . .	1 10
— De la Connaissance de Dieu (de Lens) . . . . .	1 8	— Extraits de l'Esprit des Lois et des Œuvres diverses (Jullian) . . . . .	2 0
— Oraisons funèbres (Rébelliau) . . . . .	2 6		
<b>Buffon :</b> Morceaux choisis (Nollet) . . . . .	1 6	<b>Pascal :</b> Provinciales, I, IV, XIII, et Extraits (Brunetière) . . . . .	1 10
— Discours sur le style (Nollet) . . . . .	0 10	— Pensées et opuscules (Brunschvicq) . . . . .	3 6
<b>Chanson de Roland :</b> Extraits (G. Paris) . . . . .	1 6		
<b>Chateaubriand :</b> Extraits (Brunetière) . . . . .	1 6	<b>Portraits et Récits extraits des Prosateurs du XVI<sup>e</sup> siècle</b> (Huguet) . . . . .	2 6
<b>Chrestomathie du moyen âge</b> (Paris et Langlois) . . . . .	3 0		
<b>Corneille :</b> Théâtre choisi (P. de Julleville) . . . . .	3 0	<b>Racine :</b> Théâtre choisi (Lanson) . . . . .	3 0
<b>Descartes :</b> Discours de la Méthode (Charpentier) . . . . .	1 6		
<b>Extraits des Chroniqueurs</b> (Villehardouin, Joinville, Froissart, Commines) (Paris et Jeanroy) . . . . .	2 6	<b>Récits extraits des Prosateurs et Poètes du moyen âge</b> (G. Paris) . . . . .	1 6
<b>Fenelon :</b> Fables (Ad. Régnier) . . . . .	0 10		
— Télémache (A. Chassang) . . . . .	1 10	<b>Rousseau (J. J.) :</b> Extraits en Prose (Brunel) . . . . .	2 0
— Lettre à l'Académie (Cahen) . . . . .	1 6	— Lettre sur les spectacles (Brunel) . . . . .	1 6
<b>La Bruyère :</b> Caractères (Servois et Rébelliau) . . . . .	2 6		
<b>Molière :</b> Scènes choisies (Thirion) . . . . .	1 6	<b>Scènes, récits et portraits extraits des écrivains français des XVII<sup>e</sup> et XVIII<sup>e</sup> siècles</b> (Brunel) . . . . .	2 0
— Théâtre choisi (Thirion) . . . . .	3 0		
		<b>Sévigné :</b> Lettres choisies (Ad. Régnier) . . . . .	1 10
		<b>Voltaire :</b> Charles XII (Alb. Waddington) . . . . .	2 0
		— Siècle de Louis XIV (Bourgeois) . . . . .	2 10
		— Extraits en Prose (Brunel) . . . . .	2 0
		— Choix de Lettres (Brunel) . . . . .	2 3

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## CALENDAR FOR THE SESSION

1914-1915.

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1215  
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1

## LODGINGS.

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### NOTICE TO PARENTS AND GUARDIANS OF INTENDING STUDENTS.

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The Principal desires to commend to Parents and Guardians the desirability of taking care to select suitable lodgings for Students who are going to live away from home. The University cannot undertake responsibility for the conduct of Students outside its own walls, but it is anxious to offer every assistance both to Students not living at home and to their friends.

The University Hostel for Women is announced on the next page, but, unfortunately, at present no similar institution for men is associated with the University. A list of approved lodgings is, however, kept in the University Offices, at Edmund Street; and from this list it is recommended that choice be made. The Secretary of the University, Mr. Morley, takes pains to keep the list up to date, and is always willing to advise Students as to residence.

Every Student is required to record his address at the Office; and it is a Regulation of the University that when a Student changes his lodgings, for any reason, he notifies the change to the Secretary, who is willing thereupon to inform the Parent or Guardian if it be so desired.

---

## RAILWAY SEASON TICKET ARRANGEMENTS.

---

Such Students of the University as may not yet have reached the age of 18 can obtain Season Tickets from the various Railway Companies at half the usual rates upon production of a certificate of studentship signed by the Secretary.

# Hall of Residence for Women Students.

**University House, Edgbaston Park Road.**

---

## *House Committee :*

**MRS. BEALE, President.**

**MISS C CHAMBERLAIN, Secretary.**

**MRS. W. J. ASHLEY.**

**MRS. WILLIAM CADBURY,**

**MRS. CHARLES DIXON.**

**MRS. WILSON KING.**

**MISS MARY S. LILLEY, B.A.**

**MRS. MUIRHEAD.**

**MRS ALFRED WIGGIN.**

**Warden : MISS S. MARGERY FRY, M.A.**

**Bursar : Miss M. RACKSTRAW, B.A.**

---

In October, 1904, a movement among a group of private friends of the University was started with the view of providing a Hall of Residence for women students who desire to follow a course of study in the University, and who are not living with their parents or friends, but wish to avoid the isolation and other drawbacks of living in lodgings, or the inconvenience of journeys by trains. A fund was raised sufficient to cover a large part of the cost of erection of a Women's Hostel. The University accordingly acquired a site in the Edgbaston Park Road, and erected a block of buildings containing a Hall, Common Room, Library, Dining Hall, and apartments for students and lecturers. The site is about  $2\frac{3}{4}$  acres in extent, and the building, the main block of which faces south, will accommodate about 73 students and lecturers.

The garden gives room for four grass and one ash Tennis Court, and a Cycle House is provided. The majority of the women students are not at present in attendance at the New Buildings of the University, but at those in Edmund Street, which can be reached in less than half an hour by a convenient service of trams running near the Hall of Residence.

The Hall is primarily for University Students, but it may also be available for students at the School of Art.

Applications for admission should be made at the earliest possible date to the Warden, who will also be pleased to furnish any further particulars that may be required.

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**ALMANAC.****OCTOBER—1914.**

1	Th	
2	F	
3	S	Last day for application for the Sydenham Scholarships.
4	<b>S</b>	
5	M	
6	Tu	<b>OPENING OF UNIVERSITY SESSION.</b>
7	W	Meeting of the Council.
8	Th	
9	F	
10	S	
11	<b>S</b>	
12	M	
13	Tu	
14	W	Meeting of the Faculty of Arts.
15	Th	Meeting of the Faculty of Science. Last day for applications for Entrance Scholarship for Dental Students.
16	F	
17	S	
18	<b>S</b>	
19	M	
20	Tu	
21	W	Meeting of the Senate.
22	Th	
23	F	
24	S	
25	<b>S</b>	
26	M	
27	Tu	
28	W	
29	Th	
30	F	
31	S	

## NOVEMBER—1914

1	<b>S</b>	
2	M	Last day for receiving Theses for M.D. Examination.
3	Tu	
4	W	Meeting of the Council. Meeting of the Faculty of Commerce.
5	Th	
6	F	
7	S	
8	<b>S</b>	
9	M	Last day for entry for M.B., Ch.B., M.D., and L.D.S. Exams.
10	Tu	
11	W	Meeting of the Faculty of Arts.
12	Th	Meeting of the Faculty of Science.
13	F	
14	S	
15	<b>S</b>	
16	M	
17	Tu	
18	W	Meeting of the Senate.
19	Th	
20	F	
21	S	
22	<b>S</b>	
23	M	
24	Tu	
25	W	
26	Th	
27	F	
28	S	
29	<b>S</b>	
30	M	M.B., Ch.B., M.D., and L.D.S. Examinations commence.

## DECEMBER—1914.

1	Tu	
2	W	Meeting of the Council.
3	Th	
4	F	
5	S	
6	<b>S</b>	
7	M	
8	Tu	
9	W	Meeting of the Faculty of Arts
10	Th	Meeting of the Faculty of Science
11	F	
12	S	
13	<b>S</b>	
14	M	Terminal Examinations commence.
15	Tu	
16	W	Meeting of the Senate.
17	Th	
18	F	
19	S	WINTER TERM ENDS
20	<b>S</b>	
21	M	
22	Tu	
23	W	
24	Th	
25	F	<i>CHRISTMAS DAY.</i>
26	S	Bank Holiday.
27	<b>S</b>	
28	M	
29	Tu	
30	W	
31	Th	

## JANUARY—1915.

1	F	Last day for applications for 1851 Exhibition Science Research Scholarship.
2	S	
3	<b>S</b>	
4	M	
5	Tu	
6	W	Meeting of the Council.
7	Th	
8	F	
9	S	
10	<b>S</b>	
11	M	
12	Tu	SPRING TERM COMMENCES.
13	W	Meeting of the Faculty of Arts.
14	Th	Meeting of the Faculty of Science.
15	F	
16	S	
17	<b>S</b>	
18	M	
19	Tu	
20	W	Meeting of the Senate.
21	Th	
22	F	
23	<b>S</b>	
24	<b>S</b>	
25	M	
26	Tu	
27	W	
28	Th	
29	F	
30	S	
31	<b>S</b>	

## FEBRUARY—1915.

1	M	
2	Tu	
3	W	Meeting of the Council. Meeting of the Faculty of Commerce.
4	Th	
5	F	
6	S	
7	<b>S</b>	
8	M	
9	Tu	
10	W	Meeting of the Faculty of Arts.
11	Th	Meeting of the Faculty of Science.
12	F	
13	S	
14	<b>S</b>	
15	M	Last day for entry for D.P.H. and B.Sc. in Public Health Exams.
16	Tu	
17	W	Meeting of the Senate.
18	Th	
19	F	
20	S	
21	<b>S</b>	
22	M	
23	Tu	Sir Josiah Mason born, 1795. Founder's Day. University Buildings closed.
24	W	
25	Th	
26	F	
27	S	
28	<b>S</b>	

## MARCH—1915.

1	M	
2	Tu	
3	W	Meeting of the Council.
4	Th	
5	F	
6	S	
7	<b>S</b>	
8	M	D.P.H. and B.Sc. in Public Health Examinations commence.
9	Tu	
10	W	Meeting of the Faculty of Arts.
11	Th	Meeting of the Faculty of Science.
12	F	
13	S	
14	<b>S</b>	
15	M	
16	Tu	
17	W	Meeting of the Senate.
18	Th	
19	F	
20	S	
21	<b>S</b>	
22	M	Terminal Examinations commence.
23	Tu	Royal Charter of University of Birmingham granted, 1900.
24	W	<i>LADY-DAY.</i>
25	Th	
26	F	
27	S	SPRING TERM ENDS.
28	<b>S</b>	
29	M	
30	Tu	
31	W	

## APRIL—1915.

1	Th	Last day for receiving Theses for D.Phil. and D.Litt. Degrees.
2	F	<i>GOOD FRIDAY.</i>
3	S	
4	<b>S</b>	<i>EASTER DAY.</i>
5	M	Easter Monday. Bank Holiday
6	Tu	
7	W	
8	Th	
9	F	
10	S	
11	<b>S</b>	
12	M	
13	Tu	
14	W	
15	Th	
16	F	
17	S	
18	<b>S</b>	
19	M	
20	Tu	Last day for applications for Ascough Scholarships.
21	W	
22	Th	
23	F	
24	S	
25	<b>S</b>	
26	M	
27	Tu	SUMMER TERM COMMENCES
28	W	
29	Th	
30	F	Last day for entry for University Examinations.

## MAY—1915.

1	S	
2	S	
3	M	Last day for receiving Theses for University Examinations.
4	Tu	
5	W	Meeting of the Council. Meeting of the Faculty of Commerce.
6	Th	
7	F	
8	S	
9	S	
10	M	Last day for receiving entries for Clinical Prizes. Last day for applications for 1851 Exhibition Industrial Bursary.
11	Tu	
12	W	Meeting of the Faculty of Arts
13	Th	Meeting of the Faculty of Science.
14	F	
15	S	
16	S	
17	M	
18	Tu	
19	W	Meeting of the Senate.
20	Th	
21	F	
22	S	
23	S	<i>WHIT SUNDAY.</i>
24	M	Bank Holiday.
25	Tu	
26	W	
27	Th	
28	F	
29	S	Last day for applications for Research, Bowen and Priestley Scholarships, and Gladstone Memorial Prize.
30	S	
31	M	

JUNE—1915.

1	Tu	2nd Year Arts, B.A., B.Sc., 2nd, 3rd, and 4th Engineering, 2nd and 3rd Mining and Metallurgy, 1st, 2nd, and 3rd Commerce, 2nd and Final B.Mus.; Education Diploma, Social Study Diploma, and Exams. in Honour Schools commence.
2	W	Meeting of the Council.
3	Th	
4	F	
5	S	
6	<b>S</b>	
7	M	Inter-Sci., 1st Engineering, 1st Mining and Metallurgy, Inter-Arts, M.A., 1st B.Mus.; 1st Medical, 1st L.D.S., and Entrance Exam. to Honour Schools commence.
8	Tu	
9	W	Meeting of the Faculty of Arts.
10	Th	Meeting of the Faculty of Science. Last day for entry for Matriculation Examination. Third Medical and D.P.H. and B.Sc. in Public Health Examinations commence.
11	F	
12	S	
13	<b>S</b>	
14	M	2nd, 4th, and Final M.B., Ch.B., B.D.S., M.D., Ch.M., L.D.S., and Brewing Diploma Exams. commence.
15	Tu	
16	W	Meeting of the Senate.
17	Th	
18	F	
19	S	
20	<b>S</b>	
21	M	
22	Tu	
23	W	
24	Th	<i>MIDSUMMER DAY.</i>
25	F	
26	S	SUMMER TERM ENDS.
27	<b>S</b>	
28	M	
29	Tu	Meeting of the Senate.
30	W	Meeting of the Council.

## JULY—1915.

1	Th
2	F
3	S      Degree Congregation.
4	<b>S</b>
5	M
6	Tu
7	W      Matriculation Examination commences.
8	Th
9	F
10	S
11	<b>S</b>
12	M
13	Tu
14	W
15	Th
16	F
17	S
18	<b>S</b>
19	M
20	Tu
21	W
22	Th
23	F
24	S
25	<b>S</b>
26	M
27	Tu
28	W
29	Th
30	F
31	S

## AUGUST—1915.

(The Library is closed during the whole of August.)

1	<b>S</b>	
2	M	Bank Holiday.
3	Tu	
4	W	
5	Th	Last day for entry for Supplementary and Matriculation Examinations.
6	F	
7	S	
8	<b>S</b>	
9	M	
10	Tu	
11	W	
12	Th	
13	F	
14	S	
15	<b>S</b>	
16	M	
17	Tu	
18	W	
19	Th	
20	F	
21	S	
22	<b>S</b>	
23	M	
24	Tu	
25	W	
26	Th	
27	F	
28	S	
29	<b>S</b>	
30	M	
31	Tu	

## SEPTEMBER—1915.

1	W	Last day for receiving Essays for Panton Geological Prize. Last day for applications for Walter Myers' Travelling Studentship.
2	Th	
3	F	
4	S	
5	<b>S</b>	
6	M	
7	Tu	
8	W	Matriculation Examination commences.
9	Th	
10	F	
11	S	
12	<b>S</b>	
13	M	Supplementary Examinations commence.
14	Tu	
15	W	
16	Th	
17	F	
18	S	
19	<b>S</b>	
20	M	
21	Tu	
22	W	
23	Th	
24	F	
25	S	
26	<b>S</b>	
27	M	
28	Tu	
29	W	<i>MICHAELMAS DAY.</i>
30	Th	



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UNIVERSITY OF BIRMINGHAM.

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## UNIVERSITY OF BIRMINGHAM.

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CHARTER.

**Victoria, by the Grace of God,** of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith.

To all to whom these presents shall come, greeting:

**Whereas** Petitions have been presented to Us by the Mason University College of Birmingham by the Mayor Alderman and Citizens of the City of Birmingham in the County of Warwick by the School Board for the said City by the Governors of the Grammar School of King Edward VI in the said City and by others praying Us to erect within the said City for the promotion of Arts Sciences and Learning a University and to grant a Charter with such appropriate provisions therein in that behalf as shall seem to Us meet and fit.

And whereas We have taken the said Petitions into Our Royal consideration and are minded to accede thereto.

Now therefore Know Ye that We by Virtue of Our Royal Prerogative in that behalf and all other powers enabling Us so to do of Our special grace certain knowledge and mere motion by these Presents do for Us Our Heirs and Successors grant will direct and ordain as follows:—

1.—There shall be from henceforth for ever in Our said City of Birmingham a University by the name and style of "The University of Birmingham" with Faculties of Science Arts Medicine and Commerce and such other Faculties as the Statutes of the University may from time to time prescribe.

2.—Our trusty and well-beloved Councillor Joseph Chamberlain the persons named in the Schedule hereto as members of the Court of Governors and of the Council and the Members for the time being of the Court of Governors the Council and the Senate of the University the Chancellor the Pro-Chancellor the Vice-Chancellor the

Pro-Vice-Chancellor and the Principal and Vice-Principal of the University for the time being and all others who shall pursuant to this Our Charter and the Statutes of the University for the time being be members of the University are hereby created and from henceforth for ever shall be one body politic and corporate with perpetual succession and a Common Seal by the name and style of "The University of Birmingham" with full power and capacity by and in such name to sue and be sued and to take and hold land and to do all other lawful acts whatsoever and with full right authority power and capacity without any further or other licence by virtue of this Our Charter to take and hold such lands tenements and hereditaments as may be for the time being occupied by or on behalf of the said Corporation for the transaction of its business and the actual carrying out of its purposes and also in addition other lands tenements and hereditaments to the annual value of £50,000 according to the annual value thereof at the respective times when the same shall be respectively taken.

3.—We Our Heirs and Successors Kings and Queens of the Kingdom aforesaid shall be and remain the Visitor and Visitors of the University of Birmingham through the Lord President of Our Council for the time being.

4.—There shall be a Chancellor of the said University and one Pro-Chancellor who subject to the Statutes of the University shall act for the Chancellor pending a vacancy in that office or during the absence or inability of the Chancellor.

The first Chancellor shall be Our said trusty and well-beloved Councillor Joseph Chamberlain.

The Vice-Chancellor for the time being shall be Pro-Chancellor.

5.—There shall be a Vice-Chancellor of the said University and one Pro-Vice-Chancellor who subject to the Statutes of the University shall act for the Vice-Chancellor pending a vacancy in that office or during the absence or inability of the Vice-Chancellor

6.—There shall be a Principal of the University and one Vice-Principal who subject to the Statutes of the University shall act for the Principal pending a vacancy in that office or during the absence or inability of the Principal.

There shall also be a Dean of each of the Faculties within the University. The Dean of the Faculty of Medicine shall be appointed by the Council from among the Members of that Faculty. The Deans of the other Faculties shall be appointed as provided by the Statutes of the University.

The Principal shall be from time to time appointed by Us Our Heirs and Successors through the Lord President of Our Council for the time being.

The first Vice-Principal shall be Robert Samuel Heath, M.A., D.Sc., now Principal of Mason University College.

The first Dean of the Faculty of Medicine shall be Bertram Coghill Alan Windle, M.A., M.D., D.Sc., F.R.S.

7.—The Supreme Governing Body of the University shall be the Court of Governors and subject to this Charter the Statutes of the University and the Law of the Realm the Court of Governors shall have absolute power within the University.

The first members of the Court of Governors shall be the persons nominated in the First Schedule to these presents.

Statutes of the University shall regulate the powers and business of the Court the election and continuance in office of the members of the Court (including the continuance in office of the first Members) the filling of vacancies among the members and all other Matters relative to the Court which it may be thought are proper to be so regulated. Women shall be eligible to be members of the Court of Governors.

The Chancellor shall be ex-officio head of the University and a Member and President of the Court of Governors.

The Pro-Chancellor shall be ex-officio a member of the Court of Governors.

8.—There shall be a Council of the University which shall subject to the Statutes of the University and the control of the Court of Governors as regulated by the said Statutes have the government and control of the finances of the University and of the discipline practical affairs business and work of the University.

The Vice-Chancellor shall be ex-officio a member and President of the Council.

The Pro-Vice-Chancellor shall be ex-officio a member of the Council.

The Principal Vice-Principal and the Deans of the Faculties shall be ex-officio members of the Council.

There shall also be one member of the Council who shall be elected by the Faculty of Medicine of the University.

At no time shall the members of the Council who are members of the Senate be more in number than the number of Members of the Council divided by four.

The first members of the Council shall be the persons nominated in the first Schedule to these presents.

Statutes of the University shall regulate the performance of the duties of the Council the election and continuance in office of the members of the Council (including the continuance in office of the first members) the filling of vacancies among the members and all other matters relative to the Council which it may be thought are proper to be so regulated.

9.—There shall be a Senate of the University consisting of the Principal Vice-Principal Deans of Faculties and all the Professors of the University which shall subject to Statutes of the University and the control and approval of the Council have the regulation and control of the Curriculum and Education afforded by the University and the Discipline of the Students of the University.

The Principal shall be ex-officio President of the Senate.

Statutes of the University shall regulate and define the powers and business of the Senate and all other matters relative to the Senate which it may be thought are proper to be so regulated.

10.—The University shall be both a Teaching and an Examining University and shall further the prosecution of original research in all its branches.

The University may confer on persons of either sex Degrees Diplomas and Certificates whether Honorary Substantive or otherwise and such Degrees Diplomas and Certificates shall be conferred and held subject to any such provisions as may be made by the Statutes and Ordinances of the University with reference thereto.

No religious test of any kind whatsoever shall be applied in the University or imposed upon or observed by any Member Graduate Student or Office Holder of the University.

11.—The University may admit to affiliation with it or to any of its privileges any College or Institution or the Members or Students thereof upon such terms and conditions and subject to such regulations as may from time to time be prescribed by the Statutes of the University.

12.—The Court of Governors may from time to time make Statutes for the University which shall carry into effect this Charter and its provisions and may regulate and govern and contain prescriptions in regard to the affairs business work and interests of the University and those of the Corporate Members thereof as such and the status appointment and removal of the members Chancellor Pro-Chancellor Vice-Chancellor Pro-Vice-Chancellor Principal Vice-Principal and Dean of the Faculty of Medicine and Officers thereof and may contain all such provisions as the Court may deem it fit and meet should be made with respect to or for the governing of the University its constituent parts and Members or to promote the objects of these presents.

The Council shall have such power to suggest draft or propose to the Court Statutes to be made by the Court as the Statutes of the University may provide for and it shall be the duty of the Court to duly consider the same.

The first Statutes of the University shall be those Scheduled to these presents and they are hereby declared to be valid and within the powers by this Article of these presents conferred.

The Statutes may add to amend alter or repeal the Statutes from time to time in force (including the first) and the power to make Statutes shall not be limited by or with reference to the first or any subsequent Statutes or the several subject matters therein dealt with.

Any statutes to be hereafter made which are not repugnant to the provisions of this Charter or the Laws of the Realm shall be operative and have effect when allowed by Us or by any Committee of our most Honourable Privy Council and not before. Such allowance shall be conclusive evidence of the Statutes so allowed being authorised by the provisions of this Charter.

13.—The Court of Governors the Council and the Senate respectively may from time to time make regulations for Governing subject to these presents and the Statutes of the University the proceedings of those bodies respectively. The power to make regulations shall include the power to add to amend alter or repeal any theretofore made.

The Council shall make the first regulations for the Court of Governors and the Council. The regulations for the Court of Governors require the approval of the said Court.

14.—It shall be the duty of the Council from time to time to bring before the Court of Governors and the Senate any matters which in its opinion should be dealt with by these bodies respectively.

15.—There shall be a Guild of Graduates of the University and a Guild of its Students each of whom shall have

such and so many Representatives on the Court of Governors as may be provided by the Statutes of the University. The constitution functions privileges and all other matters connected with the said Guilds requiring to be prescribed as may be provided by the Statutes.

16.—The Court of Governors may at any time alter amend or add to these presents and their provisions by a Special Resolution in that behalf and such alteration amendment or addition shall when allowed by Us Our Heirs or Successors under the sign manual or otherwise as We or They shall deem meet become effectual so that these presents shall thenceforward continue and operate as though they had been originally granted and made as so altered amended or added to as aforesaid. This Article of these presents shall apply to this Charter as altered amended or added to in manner aforesaid. A Special Resolution means a Resolution passed and confirmed in the manner provided by the Statutes of the University.

17.—Our Royal Will and Pleasure is that these presents shall ever be construed benevolently and in every case most favourably to the University of Birmingham and the promotion of the objects of this Our Charter.

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## FIRST SCHEDULE.

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### MEMBERS OF THE COURT OF GOVERNORS.

The following persons shall be the first members of the said Court :—

#### Class (I) LIFE GOVERNORS.

The Most Honourable the Marquess of Hertford, the Right Honourable the Earl of Dudley, the Right Honourable the Earl of Harrowby, the Right Honourable the Earl of Warwick, the Right Honourable the Earl of Bradford, the Right Honourable the Earl of Dartmouth, the Right

Honourable the Earl of Denbigh, the Right Honourable the Viscount Cobham, the Right Rev. John Percival (Lord Bishop of Hereford), the Right Honourable Lord Burton, the Right Honourable Lord Calthorpe, the Right Honourable Lord Leigh, the Right Honourable Lord Norton, the Right Honourable Lord Windsor, the Right Honourable Lord Wrottesley, the Right Honourable Joseph Chamberlain, the Right Honourable Sir Henry Hartley Fowler, the Right Honourable William Kenrick, Sir Henry Wiggin, Baronet, Sir John Jaffray, Baronet, Sir Benjamin Hingley, Baronet, Sir John Charles Holder, Baronet, Sir Balthazar Walter Foster, Sir Alfred Hickman, Sir John Benjamin Stone, Sir Richard Tangye, Sir Willoughby Francis Wade, James Gibbs Blake, George James Johnson, Francis Corder Clayton, George Hamilton Kenrick, Robert Francis Martineau, Edward Lawley Parker, Osmund Airy, William Ansell, Edward Ansell, William Beilby Avery, Arthur Albright, George Stacey Albright, William Arthur Albright, William Elijah Benton, Charles Gabriel Beale, Alice Beale, George Edward Belliss, Thomas Barnsley, Francis Seddon Bolton, James Booth, George Cadbury, Elsie Mary Cadbury, Helen Caddick, Andrew Carnegie, Arthur Chamberlain, Joseph Austen Chamberlain, Alexander Macomb Chance, John Homer Chance, Joseph Bennett Clarke, Gilbert Henry Claughton, William Barwick Cregeoe-Colmore, William Thomas Gustavus Cook, John Corbett, Frederick Corbett, Harriet Elizabeth Gertrude Dale, Arthur Stansfeld Dixon, Charles Woolryche Dixon, James Ernest Dixon, Frederick Elkington, Thomas Stratton Fallows, John Feeney, Walter Newton Fisher, William Gibbins, Caroline Gibbins, Thomas Gladstone, Arthur Godlee, William Henry Greenwood, Felix Hadley, Charles Harding, Edith Harrold, Obed Charles Hawkes, Alfred Bradley Hollinsworth, Charles Bradley Hollinsworth, James Richardson Holliday, John Bernard Hardman, William Harris, Robert Heath, George Hookham, Laurence William Hodson, Walter Loveridge Hodgkinson, Charles Holcroft, William Holcroft, Thomas Vincent Jackson, Frank James, Joseph James, George Hope Johnstone, William Jones, John Arthur

Kenrick, Mary Kenrick, Arthur Keen, Rachel Anna King, Ethel Mary Knox, Thomas Grosvenor Lee, Henry Lea, George Braithwaite Lloyd, John Henry Lloyd, John Pearce Lacy, John Walford Lea, Edward Binden Marten, Frank McClean, Alfred Morcom, Henry Mitchell, John Manley, Charles Edward Mathews, John Throgmorton Middlemore, George Henry Morley, Edward Nettlefold, Abraham Follett Osler, Alfred Clarkson Osler, Henry Follett Osler, Thomas Parker, Ebenezer Parkes, Charles Andrew Palmer, Richard Peyton, John Phillips, Richard Alfred Pinsent, Hume Chancellor Pinsent, Maurice Pollack, Alfred Henry Poultney, Edwin Rickards, Charles Showell, Howard Samuel Smith, Martyn Josiah Smith, Edward James Smith, William Charles Alston Smith-Ryland, Alexander William Still, Lilian Landon Thomas, Thomas William Thursfield, William Augustus Tilden, George Tangye, Michael Tomkinson, Thomas Turner, Isabel Mary Vardy. John Clough Vaudrey, Thomas Ferdinand Walker, John William Bund Willis-Bund, John Edward Wilson, Joseph Henry Wilkinson, Georgina Tarleton Young, Hugo Joseph Young.

Class (2) Five persons appointed by the Municipal Council of the City of Birmingham.

Sir JAMES SMITH.  
MAURICE POLLACK.  
WILLIAM THOMAS GUSTAVUS COOK.  
JOHN HENRY LLOYD.  
ALFRED JOHN REYNOLDS.

Class (3) One member for each of the County Councils of Warwickshire Worcestershire Staffordshire Shropshire, Leicestershire, Derbyshire, Rutlandshire, to be appointed by the respective County Councils and one member for the Council of every County Borough (other than the City of Birmingham) in the said Counties and for the Council of the Borough of Kidderminster to be appointed by the respective Councils and one member for the School Board of

every School Board for a County Borough (other than Birmingham) in the said Counties.

	<i>Appointed by</i>
THE REV. WILLIAM MACGREGOR ..	The County Council of Warwickshire.
GEORGE WILLIAM GROSVENOR ..	The County Council of Worcestershire.
FRANCIS ELLIOTT KITCHENER ..	The County Council of Staffordshire.
JAMES PATCHETT .. ..	The County Council of Shropshire.
BENJAMIN HURST .. ..	The County Council of Leicestershire.
GEORGE HERBERT STRUTT ..	The County Council of Derbyshire.
THE RIGHT HON. THE EARL OF GAINSBOROUGH .. ..	The County Council of Rutlandshire.
ALBERT SAMUEL THOMSON ..	The Council of the City of Coventry.
ALBERT BUCK .. ..	The Council of the City of Worcester.
CHARLES HAYNES .. ..	The Council of the Borough of Dudley.
EDWARD THOMAS HOLDEN ..	The Council of the Borough of Walsall.
CHARLES AKRILL .. ..	The Council of the Borough of West Bromwich.
THOMAS HAMPTON .. ..	The Council of the Borough of Hanley.
SAMUEL THEODORE MANDER ..	The Council of the Borough of Wolver- hampton.
EDWARD WOOD .. ..	The Council of the Borough of Leices- ter.
JOHN EYRE RUSSELL .. ..	The Council of the Borough of Derby.
EDWARD PARRY .. ..	The Council of the Borough of Kidder- minster.
FREDERICK BIRD .. ..	The School Board of the City of Coventry.
ALBERT WEBB .. ..	The School Board of the City of Wor- cester.

	<i>Appointed by</i>
GEORGE HENRY DUNN ..	The School Board of the Borough of Dudley.
The Rev. GEORGE BARRANS ..	The School Board of the Borough of Walsall.
The REV. JOHN WATKISS JONES ..	The School Board of the Borough of West Bromwich.
THOMAS WILLIAM HARRISON ..	The School Board of the Borough of Hanley.
ALEXANDER HUNTER ..	The School Board of the Borough of Wolverhampton.
ALEXANDER BAINES .. ..	The School Board of the Borough of Leicester.
WILLIAM BEMROSE .. ..	The School Board of the Borough of Derby.

Class (4) One person appointed by the Birmingham School Board.

The REV. JOSEPH WOOD.

Class (5) One person appointed by the Lord President of Her Majesty's Privy Council.

WILLIAM AUGUSTUS TILDEN.

One each by the Chancellors for the time being of the Universities of Oxford Cambridge London Wales the Victoria University and the University of Birmingham.

	<i>Appointed by</i>
EDWARD BAGNALL POULTON ..	The Chancellor of the University of Oxford
WILLIAM NAPIER SHAW ..	The Chancellor of the University of Cambridge.
JOSEPH LARMOR .. ..	The Chancellor of the University of London.
The Right Hon. LORD RENDEL ..	The Chancellor of the University of Wales.
NATHAN BODINGTON ..	The Chancellor of the Victoria University.
(To be appointed.) .. ..	The Chancellor of the University of Birmingham.

One by the Warden of Durham University.

FRANK BYRON JEVONS.

One by the Royal College of Physicians of London.

CHARLES THEODORE WILLIAMS.

One by the Council of the Royal College of Surgeons of England.

Sir WILLIAM McCORMACK, Baronet.

Class (6) Ten of the Members of Parliament elected for the Boroughs Counties and Divisions of Counties or Boroughs in the said seven Counties.

The Right Hon. JESSE COLLINGS, M.P.

VICTOR MILWARD, M.P.

RICHARD BIDDULPH MARTIN, M.P.

JOHN WILLIAM WILSON, M.P.

WILLIAM WOODALL, M.P.

Sir HENRY HOWE BEMROSE, M.P.

VICTOR C. W. CAVENDISH, M.P.

ALEXANDER HARGREAVES BROWN, M.P.

Lord EDWARD MANNERS, M.P.

ALFRED BALDWIN, M.P.

Class (7) Governors ex-officio.

The Lord Mayor of Birmingham (CHARLES GABRIEL BEALE.)

The Right Rev. JOHN JAMES STUART PEROWNE, D.D.,  
Lord Bishop of Worcester.

The Right Rev. The Hon. AUGUSTUS LEGGE, D.D., Lord  
Bishop of Lichfield.

The Right Rev. EDWARD ARBUTHNOT KNOX, D.D.,  
Suffragan-Bishop of Coventry.

The Right Rev. EDWARD ILSLEY, D.D., Roman Catholic  
Bishop of Birmingham.

The Chairman of the Guardians of the Poor of the Parish  
of Birmingham.

STEPHEN GATELEY.

The Chairman of the Birmingham School Board.

The Rev. EGERTON FRANCIS MEAD MACCARTHY.

The Bailiff of the Governors of the Foundation of  
King Edward VI. Birmingham.

ROBERT SAMUEL HEATH.

The Senior Vice-President of the Birmingham and Midland Institute.

HUME CHANCELLOR PINSENT.

The Head Master of the High School on the Foundation of King Edward VI. Birmingham.

THE REV. ALBERT RICHARD VARDY.

The Head Masters of Rugby Repton Shrewsbury Uppingham and Malvern.

The Rev. HERBERT ARMITAGE JAMES ..	Rugby.
The Rev. WILLIAM MORDAUNT FURNEAUX ..	Repton.
The Rev. H. WHITEHEAD MOSS ..	Shrewsbury.
The Rev. EDWARD CARUS SELWYN ..	Uppingham.
The Rev. SYDNEY RHODES JAMES.. ..	Malvern.

The Head Masters of the Grammar Schools on the Foundation of King Edward VI. Birmingham.

THE REV. EGERTON FRANCIS MEAD MACCARTHY.

THE REV. ARTHUR JAMSON SMITH.

ERNEST WILLIAM FLOYD.

The Head Mistress of the High Schools for Girls on the Foundation of King Edward VI. Birmingham.

EDITH ELIZABETH MARIE CREAK.

The Head Master of the Birmingham Municipal School of Art.

EDWARD RICHARD TAYLOR.

The Principal of the Birmingham Municipal Technical School.

WILLIAM EDWARD SUMPNER.

The President of the Birmingham and Midland Counties Branch of the British Medical Association.

BENNETT MAY.

The President of the Central Counties Branch of the British Dental Association.

JOHN THOMAS CRAIG.

The President of the Birmingham Clinical Board.

THOMAS FREDERICK CHAVASSE.

The President of the Birmingham Law Society.

JOSEPH ANSELL.

The Chairman of the Committee of the General Hospital Birmingham.

JOSEPH HICKMAN PEARSON.

The Chairman of the Committee of the Queen's Hospital Birmingham.

HENRY GLAISYER.

The Vice-Principal.

ROBERT SAMUEL HEATH.

The Dean of the Medical Faculty.

BERTRAM COGHLILL ALAN WINDLE.

Class (15) One Member appointed by each of the following eleven Associations of Voluntary Elementary Schools, viz. :—

*Church of England Associations.*

*Diocese of Worcester (comprising the Counties of Worcester and Warwick).*

(a) The Church Schools Association for the Diocese of Worcester.

The Right Rev. JOHN JAMES STUART PEROWNE, D.D., Lord Bishop of Worcester.

(b) The Church Schools Sub-Association for the Archdeaconry of Worcester.

The Ven. WILLIAM WALTERS, Archdeacon of Worcester.

(c) The Church Schools Sub-Association for the Archdeaconry of Coventry.

The Ven. WILLIAM BREE, D.D., Archdeacon of Coventry.

(d) The Church Schools Sub-Associations for the Archdeaconry of Birmingham.

The Right Rev. EDMUND ARBUTHNOT KNOX, D.D., Bishop-Suffragan of Coventry.

*Diocese of Lichfield.*

The Church Schools Associations for the Diocese of Lichfield as under :

- (e) The Staffordshire Voluntary Schools Association and its two divisions.

The Right Rev. The Hon. AUGUSTUS LEGGE, D.D., Lord Bishop of Lichfield.

- (f) The North Staffordshire Sub-Association.

The Rev. CHARLES HARE SIMKINSON.

- (g) The South Staffordshire Sub-Association.

ISAAC EDWARD EVERETT.

- (h) The North Salop Voluntary Schools Association.

The Rev. THOMAS AUDEN.

*Roman Catholic Association.*

- (i) Birmingham Diocesan Catholic Schools Association (Comprising the Counties of Worcester Warwick Stafford and Oxford.)

JAMES JOHN PARFITT.

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- (j) Midland Association of Wesleyan Day Schools (comprising the Counties of Leicester, Stafford Warwick Worcester and parts of Cheshire Derby Lincoln (Kesteven) Notts Salop and York (W.R.).

WILLIAM PARKIN.

- (k) The Midland Counties Association of British and other Voluntary Schools. (Comprising the Counties of Derby Leicester Notts Salop Warwick and parts of Staffordshire and Worcestershire.)

ALFRED WILLIAM WORTHINGTON.

**MEMBERS OF THE COUNCIL.**

The following persons shall be the first members of the said Council.

The Rt. Hon. JOSEPH CHAMBERLAIN Chancellor.

(To be elected)	{	Vice-Chancellor.
		Pro-Vice-Chancellor.
		Treasurer.
		Principal.

ROBERT SAMUEL HEATH. . . Vice-Principal.

BERTRAM COGHILL ALAN WINDLE . . Dean of the Faculty of Medicine.

## Class (2)—

The Right Hon. LORD WINDSOR.  
 Sir JOHN CHARLES HOLDER, Baronet  
 JAMES GIBBS BLAKE.  
 FRANCIS CORDER CLAYTON.  
 GEORGE WILLIAM GROSVENOR  
 GEORGE JAMES JOHNSON.  
 GEORGE HAMILTON KENRICK.  
 FRANCIS ELLIOTT KITCHENER.  
 The Rev. WILLIAM MACGREGOR.  
 SAMUEL THEODORE MANDER.  
 ROBERT FRANCIS MARTINEAU.  
 HUME CHANCELLOR PINSENT.  
 EDWIN RICKARDS.  
 CHARLES SHOWELL.

## Class (3)—

Sir JAMES SMITH.  
 MAURICE POLLACK.  
 WILLIAM THOMAS GUSTAVUS COOK  
 JOHN HENRY LLOYD.  
 ALFRED JOHN REYNOLDS.

## Class (4)—To be appointed.

## Class (5)—To be appointed.

## SECOND SCHEDULE

## STATUTES OF THE UNIVERSITY.

## SECTION I.

## PRELIMINARY.

In these Statutes :—

- “ University ” means the University of Birmingham.
- “ Court ” means the Court of Governors of the University.
- “ Council ” means the Council of the University.
- “ Senate ” means the Senate of the University.
- “ Faculty ” means a Faculty of the University.

“ Chancellor ” “ Pro-Chancellor ” “ Vice-Chancellor ” “ Pro-Vice-Chancellor ” “ Principal ” “ Vice-Principal ” and “ Deans of the Faculty ” mean respectively the Chancellor Pro-Chancellor Vice-Chancellor Pro-Vice-Chancellor Principal Vice-Principal and Deans of the Faculties of the University.

“ Statutes ” means the Statutes of the University.

“ Ordinance ” means Ordinance made pursuant to the Statutes.

“ Regulation ” means Regulation made pursuant to the Charter or Statutes.

“ Graduate ” means Graduate of the University.

“ Under-graduate ” means Under-graduate Student of the University.

“ Professor ” means Professor appointed to be such in the University.

“ Treasurer ” means Treasurer of the University.

“ Secretary ” means Secretary of the University.

“ Registrar ” means Registrar of the University.

“ Financial year ” means the yearly period for which the accounts and financial affairs of the University are for the time being made up arranged and calculated.

“ Auditor ” means Auditor of the University Accounts.

“ Good cause ” when used in reference to removal from office membership or place means (1) misbehaviour in office (2) being a lunatic (3) conviction of any felony (4) conviction of any misdemeanour which shall be judged by the authority invested with the power of removal to be of an immoral scandalous or disgraceful nature (5) actual incapacity in or for the execution of the duties of the office membership or place or (6) any misbehaviour of an immoral scandalous or disgraceful nature rendering the holder of the office membership or place unfit in the opinion of the authority invested with the power of removal to continue such holder.

## SECTION 2.

### THE CHANCELLOR.

1.—The Chancellor shall be elected by the Court but his election to be effective must be approved by the Crown.

2.—The Chancellor shall hold office during good behaviour.

3.—The Chancellor may be removed for good cause by the Visitor at the instance of the Court.

4.—The Chancellor may resign by writing addressed to the Court and signed by him.

5.—The above provisions so far as applicable apply to the First Chancellor.

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## SECTION 3.

### THE VICE-CHANCELLOR AND PRO-VICE-CHANCELLOR.

1.—The Vice-Chancellor and Pro-Vice-Chancellor shall be elected by the Court but if the Chancellor shall object to the election of any person and show cause for his objection to the Visitor the Visitor may in his discretion annul the election.

2.—The said Officers shall hold office during good behaviour.

3.—Either of the said Officers may be removed for good cause by the Visitor at the instance of the Court.

4.—The said Officers may respectively resign by writing signed by them addressed to the Chancellor.

5.—The above provisions so far as applicable shall apply to the First Vice-Chancellor and Pro-Vice-Chancellor.

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## SECTION 4.

### PRINCIPAL.

1.—The Principal shall be appointed by the Crown.

2.—The Principal shall hold office during good behaviour.

3.—The Principal may be removed for good cause by the Visitor at the instance of the Court.

4.—The Principal may resign by writing addressed to the Court and signed by him.

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## SECTION 5.

### VICE-PRINCIPAL AND DEAN OF THE FACULTY OF MEDICINE.

1.—The Vice-Principal and Dean of the Faculty of Medicine shall be appointed by the Council.

2.—The Vice-Principal and the said Dean shall hold office during good behaviour.

3.—The said officers may be removed by the Council for good cause provided that such removal shall only be carried by a Resolution of the Council passed at a meeting at which not less than an absolute majority of the whole Council are present and vote and carried at such meeting by the vote of two-thirds of those present.

4.—The said Officers may respectively resign their offices by writing signed by them and addressed to the Vice-Chancellor.

5.—The above provisions so far as applicable shall apply to the First Vice-Principal and Dean of the Faculty of Medicine.

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## SECTION 6.

### THE TREASURER.

1.—The Treasurer shall be appointed by the Court and shall be ex-officio a member of the Court.

2.—The Treasurer's term of office shall be five years from the appointment and subject thereto during good behaviour.

3.—The Treasurer shall furnish such security as the Council shall think fit to require but it shall not be obligatory on the Council to demand security from the Treasurer.

4.—The Treasurer shall be removable from office for good cause by the Council.

5.—The Treasurer may resign by writing under his hand addressed to the Vice-Chancellor.

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#### SECTION 7.

##### THE SECRETARY.

The Council shall from time to time appoint a Secretary of the University for such term and at such remuneration as it shall deem fit who may be suspended or dismissed by the Council in its discretion

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#### SECTION 8.

##### THE REGISTRAR.

The Council shall from time to time appoint a Registrar of the University for such term and at such remuneration as it shall deem fit who may be suspended or dismissed by the Council in its discretion.

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#### SECTION 9.

##### AUDITOR.

1.—The Court shall from time to time appoint an Auditor who shall not nor shall any member of his firm be a member of any of the University Governing Bodies but shall be a member of the Institute of Chartered Accountants of England and Wales in the active practice of his profession.

2.—The Auditor's term of office shall be three years subject to good behaviour.

3.—The Auditor may be removed for good cause by the Court.

4.—The Auditor shall receive such remuneration as may be agreed to by the Council.

5.—The Auditor shall give such certificates as the Regulations prescribe.

6.—The Auditor may resign in writing addressed to the Council.

7.—Acceptance of office by an Auditor shall be deemed to carry with it an undertaking by the Auditor to the University that every certificate given by him or passing of accounts by him implies that he satisfied himself by full and careful investigation (made by himself or agents for whom he undertakes to be responsible) by every reasonable means within his power or reach and after the exercise of due professional skill that the statements in the certificate are true and accurate and that any accounts certified or passed are complete true and accurate.

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## SECTION 10.

### MEMBERS OF THE UNIVERSITY.

The following persons shall be Members of the University :—

#### Class A—

Members of the Court.

Members of the Council.

Members of the Senate.

#### Class B—

The officers of the University hereinbefore mentioned other than the Auditor.

#### Class C—

Such Members of the Teaching Staff of the University as shall under Ordinances or Regulations made by the Council enjoy the status of members.

#### Class D—Graduates.

#### Class E—Undergraduates

Membership of the University shall continue so long only as the qualifications above enumerated continue to be possessed by the individual member and expiration of the term of office removal from or resignation of office or withdrawal or resignation of the qualification (as the case may be) shall terminate the individual's membership of the University.

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## SECTION II.

### THE COURT.

1.—The following shall be members of the Court :—

Class (1) The Life Governors who are nominated in the First Schedule to these Presents and their successors.

Class (2) Five persons to be appointed by the Municipal Council of the City of Birmingham.

Class (3) One member for each of the County Councils of Warwickshire Worcestershire Staffordshire Shropshire Leicestershire Derbyshire Rutlandshire to be appointed by the respective County Councils and one member for the Council of every County Borough (other than the City of Birmingham) in the said Counties and for the Council of the Borough of Kidderminster to be appointed by the respective Councils and one member for the School Board of every School Board for the County Borough (other than Birmingham) in the said Counties and one member for such other Counties Municipal Boroughs or School Boards as the Court by resolution prescribe.

Class (4) One person to be appointed by the Birmingham School Board.

Class (5) Persons appointed as follows :—

One by the Lord President for the time being of Her Majesty's Privy Council.

One each by the Chancellors for the time being of the Universities of Oxford Cambridge London Wales the Victoria University and the University of Birmingham.

One by the Warden of Durham University.

One by the Royal College of Physicians of London.

One by the Council of the Royal College of Surgeons of England.

Class (6) Ten of the Members of Parliament elected for the Boroughs Counties and Divisions of Counties or Boroughs in the said seven Counties to be nominated by the Court.

Class (7) The following officials shall be members of the Court ex-officio :—

The Lord Mayor of Birmingham.

The Lords Bishops of Worcester and Lichfield the Bishop of Coventry and the Roman Catholic Bishop of Birmingham.

The Chairman of the Guardians of the Poor of the Parish of Birmingham.

The Chairman of the Birmingham School Board.

The Bailiff of the Governors of the Foundation of King Edward VI. Birmingham.

The Senior Vice-President of the Birmingham and Midland Institute.

The Head Master of the High School on the Foundation of King Edward VI. Birmingham.

The Head Masters of Rugby Repton Shrewsbury Uppingham and Malvern.

The Head Masters of the Grammar Schools on the Foundation of King Edward VI. Birmingham.

The Head Mistress of the High School for Girls on the Foundation of King Edward VI. Birmingham.

The Head Master of the Birmingham Municipal School of Art.

The Principal of the Birmingham Municipal Technical School.

The President of the Birmingham and Midland Counties Branch of the British Medical Association.

The President of the Central Counties Branch of the British Dental Association.

The President of the Birmingham Clinical Board.

- The President of the Birmingham Law Society.  
The Chairman of the Committee of the General Hospital Birmingham.  
The Chairman of the Committee of the Queen's Hospital Birmingham.  
The Principal and Vice-Principal.  
The Deans of the Faculties.  
The Professors of the University.  
The Honorary Secretary of the Dental Department of the University.
- Class (8) Six persons elected by the Guild of Graduates.
- Class (9) Three persons elected by the Guild of Undergraduates.
- Class (10) Every donor to the funds of the University to the amount or value of £1,000 or upwards whether by one or more donations or by instalments shall be a member for life.
- Class (11) Every such donor as in Class (10) referred to making the donation by testament shall be entitled to appoint by testament or by will to authorise his personal representatives on one occasion to appoint some person to be a life member.
- Class (12) Any Corporation Local Authority Company Association or Partnership making such a donation as in Class (10) mentioned shall be entitled on one occasion to appoint one person to be a life member.
- Class (13) Such representatives of affiliated colleges as may be appointed under Section 20 of these Statutes.
- Class (14) Such other persons not exceeding 20 in number as may be elected by the Court who shall be members for such periods as the Court at the time of election appoints.
- Class (15) One member to be appointed by each of the following eleven Associations of Voluntary Elementary Schools, viz. :—

*Church of England Associations.*

*Diocese of Worcester (comprising the Counties of Worcester and Warwick.)*

- (a) The Church Schools Association for the Diocese of Worcester.
- (b) The Church Schools Sub-Association for the Arch-deaconry of Worcester.
- (c) The Church Schools Sub-Association for the Arch-deaconry of Coventry.
- (d) The Church Schools Sub-Associations for the Arch-deaconry of Birmingham.

*Diocese of Lichfield.*

The Church Schools Associations for the Diocese of Lichfield as under—

- (e) The Staffordshire Voluntary Schools Association and its two divisions.
- (f) The North-Staffordshire Sub-Association.
- (g) The South-Staffordshire Sub-Association.
- (h) The North Salop Voluntary Schools Association.

*Roman Catholic Association.*

- (i) Birmingham Diocesan Catholic Schools Association.  
(Comprising the Counties of Worcester Warwick Stafford and Oxford.)
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- (j) Midland Association of Wesleyan Day Schools  
(Comprising the Counties of Leicester Stafford Warwick Worcester and parts of Cheshire Derby Lincoln (Kesteven) Notts Salop and York (W.R.)
- (k) The Midland Counties Association of British and other Voluntary Schools. (Comprising the Counties of Derby Leicester Notts Salop Warwick and parts of Staffordshire and Worcestershire.)

2.—Any vacancy occurring in the number of Life Governors in Class (1) may be filled up by the election by the Court of Governors of some fit person to be a Life Governor of the University.

3.—All casual vacancies shall be filled up as soon as conveniently possible by the person or body which appointed the member whose place has become vacant and the appointee to a casual vacancy shall be a member for the residue of the term for which the person in whose place he is appointed was a member.

4.—The members in Class (2) shall hold office for five years and one is to vacate office in every year on the 1st day of December. The first vacation to be in the year 1901. The Municipal Council shall as soon as may be after the date of these presents determine the order in which their first appointees shall retire and vacancies by retirement shall be filled at such times and in such manner as the said Council directs.

5.—The members in each of Classes (3) (4) (5) (8) (9) (13) and (15) shall hold office for three years dating from January 1st in every year and vacancies by retirement shall be filled at such time and in such manner as the appointors respectively think fit. The first members shall act as such as from the date of these presents but shall reckon their term of office as from January 1st 1900.

6.—The members in Class (6) shall continue members so long as they continue Members of Parliament and no longer. Vacancies shall be filled as they occur and as soon thereafter as conveniently may be.

7.—Members retiring by effluxion of time may be re-elected.

8.—Members (other than ex-officio members) may be removed for good cause by the Court.

9.—Members need not be members of the bodies by which they are appointed.

10.—Women may be members of the Court.

11.—Where members of the Court comprised within any of the classes aforesaid have not been nominated in the First Schedule to the Charter such members shall be appointed in accordance with this section as soon as may be after the date of the Charter.

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## SECTION 12.

### THE COUNCIL.

1.—The Council shall consist of the following members viz. :—

Class (1) The Chancellor the Vice-Chancellor Pro-Vice-Chancellor Treasurer Principal Vice-Principal and Dean of the Faculty of Medicine.

Class (2) Sixteen members of the Court appointed by the Court with such additional members similarly appointed as are required to satisfy clause 9 of this section.

Class (3) The five persons appointed by the Birmingham City Council to be members of the Court.

Class (4) The Deans of the Faculties other than the Faculty of Medicine.

Class (5) A representative of the Faculty of Medicine elected by the members of that Faculty.

2.—Class (2) shall hold office for four years and Classes (4) and (5) for three years. The term shall in the case of the first appointment be reckoned as from the date of the Charter and in case of any subsequent appointment from the date of such appointment or re-appointment as the case may be.

3.—Of Class (2) one-fourth or the number nearest to one fourth shall retire every year. The Court shall determine the order in which the members of Class (2) shall retire. Every retiring member of this class shall continue to act until his successor is appointed.

4.—All casual vacancies shall be filled up as soon as conveniently may be by the body which appointed the member whose place has become vacant and the appointee to a casual vacancy shall be a member for the residue of the term for which the person in whose place he is a member was appointed.

5.—Except as expressly above provided appointees need not be members of the body by which they are appointed.

6.—Members retiring by effluxion of time may be re-elected.

7.—Members (other than ex-officio members) may be removed for good cause by the Court.

8.—In case any member of the Council comprised within any of the above classes has not been nominated in the First Schedule to the Charter he shall be appointed in accordance with this Section as soon as possible.

9.—Class (2) aforesaid shall be increased by three members for every member of the Senate also member of the Council who brings up the number of members of the Senate who are members of the Council to a number exceeding the proportion provided by the Charter. Such additional members shall be elected as soon as possible after the cause of election arises.

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### SECTION 13.

#### THE SENATE.

1.—The Senate shall consist of the Principal Vice-Principal the Deans of all the Faculties and all the Professors of the University for the time being.

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### SECTION 14.

#### ORDINANCES.

1.—The Council shall make the Ordinances with regard to such matters as are directed by the Statutes.

2.—Ordinances shall be effective and binding when sanctioned by the Court except that in cases certified to be urgent by a vote to that effect of not less than an absolute majority of the Council Temporary Ordinances may be made and shall be operative from a date prescribed by the Council until the next meeting of the Court, at which the Ordinance can be considered.

3.—Ordinances shall subject to the Charter and Statutes deal with the following matters :—

- (a) The finances investments and accounts of the University.
- (b) The constitution functions and privileges of the Guilds of Graduates and Under-Graduates and other matters connected with the said Guilds requiring to be prescribed.
- (c) The Degrees Diplomas Certificates and distinctions (honorary and substantive) to be awarded by the University the qualifications for the same inclusive of examinations and the means and steps to be taken relative to the granting and obtaining of the same.
- (d) Prescriptions regarding the discipline to be enforced in regard to the Graduates and Under-Graduates.
- (e) The withdrawal of Degrees Diplomas Certificates and Distinctions.
- (f) The removal from membership of the University of Graduates and Under-Graduates.
- (g) Such subjects as are required by the Statutes to be prescribed by means of Ordinances.
- (h) The inspection and examination of Schools and other Institutions and the Scholars and Students therein and the grant of Certificates of Proficiency.
- (i) The provisions and tenure of such Fellowships Scholarships Exhibitions prizes rewards and pecuniary and other aids as are referred to in Section 16 of the Statutes.

- (k) The payment and amount of fees to be exacted within the University or in relation to the enjoyment of privileges therefrom.
  - (l) The emoluments allowances salaries and superannuation allowances of the Officers of the University its Professors Lecturers Teaching Staff Secretary Registrar and permanent servants.
  - (m) The provision employment tenure of office and terms and manner of appointment and the duties of and teaching by Professors Lecturers and Teaching Staff.
  - (n) The conditions of affiliation of Colleges.
  - (o) The provision maintenance and supervision of Halls or other premises for the residence of students.
  - (p) The duties and powers of Faculties and Advisory Boards.
  - (q) The tenure of office and terms and manner of appointment and the duties of the Examiners Examining Boards Secretary Registrar Librarian and permanent servants.
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## SECTION 15.

### FACULTIES.

1.—There shall be within the University the Faculties following :—

- (1) Science.
- (2) Arts.
- (3) Medicine.
- (4) Commerce.
- (5) Such others as may be added by Statute.

2.—Ordinances shall prescribe which professors and teachers shall be members of or be attached to the several Faculties. The Principal and Vice-Principal shall be members of all Faculties. Ordinances shall also provide

for the subjects which are to be within the cognizance of the respective Faculties.

3.—In the Faculties other than that of Medicine the respective Deans shall be appointed by the Members of the Faculty and hold office for three years.

4.—In each Faculty the Dean shall preside over the Meetings of his Faculty.

5.—The Deans other than the Dean of the Faculty of Medicine shall be removable for good cause by the Faculty appointing them respectively with the sanction of the Council.

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## SECTION 16.

### TEACHING.

The University shall so far as and to the full extent which its resources from time to time permit provide for :—

- (a) Instruction and teaching in every Faculty.
- (b) Such instruction in all branches of liberal education as may enable students to become proficient in and qualify for degrees diplomas and certificates in science commerce arts literature law medicine surgery and all other branches of knowledge.
- (c) Such instruction especially whether theoretical technical artistic or otherwise as may be of service to persons engaged or about to engage in the manufactures commerce and industrial pursuits of the Midland Districts of England.
- (d) Facilities for the prosecution of original research in science literature arts medicine surgery law and especially the applications of science.
- (e) Such fellowships scholarships exhibitions prizes and rewards and pecuniary and other aids as shall facilitate or encourage proficiency in the subjects taught in the University and also original research in every branch.

(f) Such extra-collegiate and extra-university instruction and teaching as may be sanctioned by ordinances.

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## SECTION 17.

### UNIVERSITY EXAMINATIONS.

1.—Except in the case of subjects not taught in the University the Examiners of the University shall be the Professors of the University with such Lecturers of the University as the Council from time to time appoint and such external Examiners not being Professors Lecturers or Teachers in the University as may be from time to time appointed by the Council. Provided that at least one such External Examiner shall be appointed by the Council for each subject or group of subjects forming part of the courses of studies required for University degrees.

2.—All matters respecting the subjects time and mode of the examinations and respecting the degrees and distinctions to be conferred by the University shall be provided for by Ordinance. Provided always that all Examinations of members of the University shall be conducted jointly by External Examiners and by Examiner being Professors or Lecturers of the University.

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## SECTION 18.

### COMMITTEES.

1.—The Court Council and Senate may respectively appoint such and so many standing and special Committees as may seem to them fit for the purpose of dealing with any subjects or matters delegated to such Committees. The Committee's power shall be such as the bodies appointing them from time to time direct and may be revoked altered or enlarged as to the appointing bodies shall seem meet. Every Committee shall report to the body appointing

it but to the extent to which that body from time to time directs the proceedings and acts of Committees shall not require the approval of the appointing body.

2.—The Council shall make regulations for the proceedings of all Committees but subject thereto every Committee may regulate its own procedure times and places of meeting.

3.—The Vice-Chancellor shall ex-officio be a member of every Committee of the Court and Council and every joint Committee of the Court and Council.

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## SECTION 19.

### ADVISORY BOARDS.

The Council may from time to time appoint Advisory Boards consisting either wholly or partly of members unconnected with the University upon such terms and for such purposes as the Council may consider advisable and may refer to them for advice and report any subject or matter in the Council's opinion requiring to be so dealt with. And such advice and report shall be duly considered and weighed by any body in the University to which the Council direct such advice to be given or report to be made.

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## SECTION 20.

### AFFILIATION.

1.—The University shall have power to affiliate Colleges which may have attained a standard which shall be deemed satisfactory by the University to require contributions for University purposes from such Colleges as a condition of affiliation or otherwise and to make ordinances for regulating their relations to the University and in particular for regulating the number of the representatives of such Colleges on the University Court.

2.—The University may recognise attendance upon courses of study in an affiliated College as wholly or in part qualifying students for graduation. Provided that the recognition of lecturers teachers and examiners the regulations respecting the period of attendance upon and the character and subjects of such courses and the period of attendance at such College and the period of collegiate study for which exemption is to be granted shall be approved by the Council and provided also that the Council shall not approve thereof unless the Senate has recommended the same or unless and until the Senate shall have had a reasonable opportunity of considering and reporting thereupon to the Council.

3.—Notwithstanding that a subject is not taught in the University the Court shall have power to recognise a College in which such subject is taught and to recognise such subject as a subject for degrees in the University. Provided that pursuance of a scheme of study in that subject approved by the Council be a condition precedent to examination in that subject.

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## SECTION 21.

### MEETINGS OF THE COURT.

1.—A meeting hereinafter distinguished as the “yearly meeting” of the Court shall be held once a year in the month of January or February at such day and hour as shall be appointed by the Council with the approval of the Chancellor and at such yearly meeting a Report of the Proceedings of the Council and of the University together with a Statement of the Receipts and Expenditure and the Balance Sheet as audited shall be presented by the Council to such meeting.

2.—For the purpose of transacting the business in the preceding clause mentioned a quorum of the Court shall be twenty members.

3.—All other business at the yearly meeting shall be deemed special business and for the purpose of any such special business and also for the purposes of all special general meetings the quorum shall be forty members.

4.—In the absence of a quorum no business but the adjournment of the Court can be transacted.

5.—Special general meetings may be convened by the Council at any time.

6.—Twenty-one day's notice of the yearly meeting shall be sent by the Secretary to every member of the Court.

7.—Members intending to bring forward any special business at the yearly meeting shall give notice of such business to the Secretary at least fourteen days before the day appointed for such meeting and at least seven days' notice of all special business to be brought forward at the yearly meeting shall be sent to every member of the Court.

8.—Twenty-one days' notice of any special general meeting stating generally the nature of the business to be transacted shall be sent to each member of the Court and no meeting shall be competent to transact any other business than that mentioned in the notice or directly arising thereout. Provided always that this clause shall not interfere with the operation of clause 7 of this section.

9.—The procedure at meetings of the Court shall be in accordance with the regulations made for governing the same as provided by the Charter.

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## SECTION 22.

### POWERS OF THE COURT.

1.—The Court shall exercise all the powers and authority of the University except to the extent to which the exercise of the same may by the Charter Statutes and Ordinances be otherwise provided for.

2.—To make Statutes either at its own initiative or on the proposal of the Council.

3.—All Statutes must be passed at one meeting of the Court and confirmed at the next and special notice of the fact that Statutes will be considered and containing a short statement of the nature of the proposed Statutes must have been given with respect to each of the two meetings aforesaid.

4.—A Special Resolution of the Court means a resolution passed at one meeting of the Court and confirmed at a subsequent meeting held not less than one calendar month nor more than three calendar months after the former provided the resolution be passed at each meeting by a majority of not less than two-thirds of those present and voting.

5.—The Court shall exercise control over the Senate through the Council and not otherwise and over the Council by means of Statutes and resolutions passed in plenary sittings of the Court and not otherwise.

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### SECTION 23.

#### ACTS DURING VACANCIES.

1.—No act or resolution of the Court the Council or the Senate shall be invalid by reason only of any vacancy in the body doing or passing it or by reason of any want of qualification by or invalidity in the election or appointment of any de facto member of the body (whether present or absent).

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### SECTION 24.

#### POWERS OF THE COUNCIL.

1.—Subject to the Charter and the Statutes and any Ordinances and Regulations made in pursuance thereof the Council shall have the following powers:—

1. To draft Statutes as and when they see fit and submit the same to the Court for consideration and enactment.
2. To make ordinances for any matters in respect of which ordinances are authorised to be made.
3. To make regulations for any purposes for which regulations are authorised to be made.
4. To exercise all such powers as are conferred on the Council by the Charter Statutes Ordinances and Regulations and carry the Charter Statutes Ordinances and Regulations into effect.
5. To review and control or disallow any act of the Senate and give directions to be obeyed by the Senate.
6. To govern manage and regulate the finances accounts investments property business and all affairs whatsoever of the University.
7. To make contracts on behalf of the University
8. To sell buy exchange lease or take leases of the University's real and leasehold estates.
9. To provide the buildings premises furniture and apparatus and other means needed for carrying on the business of the University.
10. To supervise the Instruction and Teaching of the University.
11. To entertain adjudicate upon and if thought fit redress the grievances of members of the Senate on appeal against the acts of the Senate and of the Officers of the University the Professors the Teaching Staff the Graduates Under-Graduates and the University Servants who may for any reason feel aggrieved otherwise than by an Act of the Court.
12. To select a seal and arms for the University and have the sole custody and use of the seal.

13. To borrow money on behalf of the University and for that purpose (if the Council think fit) to mortgage all or any part of the property of the University whether real or personal or give such other security whether upon such real or personal property or otherwise as the Council think fit.
  - 2.—The Council shall obey and carry out the Statutes and the Resolutions of the Court.
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## SECTION 25.

### POWERS OF THE SENATE.

1.—The Senate shall subject to review by the Council have the government management and carrying out of the curriculum instruction and education afforded by the University the examinations held by the University recommendations for degrees diplomas certificates fellowships and scholarships and the discipline (whether intra-mural or extra-mural) of the students or under-graduates of the University and the carrying out of such discipline.

2.—Such matters as shall be committed to the Senate by the Council shall be transacted by the Senate.

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## SECTION 26.

Contracts made by or on behalf of the University shall be validly made and binding on the University if made as follows—

- (1) Any contract which if made between private persons would be by law required to be in writing and if made according to English Law to be under seal may be made on behalf of the University in writing under its common seal and such contract may be in the same manner varied or discharged.

- (2) Any contract which if made between private persons would be by law required to be in writing and signed by the parties to be charged therewith may be made on behalf of the University in writing signed by any person acting under the express or implied authority of the Council and such contract may in the same manner be varied or discharged.
  - (3) Any contract which if made between private persons would by law be valid although made verbally only and not reduced into writing may be made either in writing or verbally on behalf of the University by any person acting under the express or implied authority of the Council and such contract may be in the same way varied or discharged.
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### SECTION 27.

1.—These Statutes shall be interpreted in such manner as not to conflict with the Charter.

2.—Words defined in the Charter or Statutes shall have the same meaning in the Ordinances and Regulation unless the context be repugnant thereto.

**In Witness** whereof We have caused these Our Letters to be made patent. **Witness** Ourself at Westminster the twenty-fourth day of March, in the sixty-third year of Our reign.

**By Warrant** under the Queen's Sign Manual.

MUIR MACKENZIE.



Seal.

## Birmingham University Act 1900.

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### ARRANGEMENT OF SECTIONS.

	SECTION
Preamble.	
Short title .....	1
Commencement of Act .....	2
Dissolution of Mason University College and repeal of Act of 1897 .....	3
Transfer of property to University of Birmingham .....	4
Appeal to Visitor with respect to management of property, &c. ....	5
Transfer of liabilities to University of Birmingham .....	6
Saving for agreements deeds actions &c. ....	7
Transfer of powers to nominate members of certain governing bodies .....	8
Power of University of Birmingham to hold examinations under 49 & 50 Vict. c. 48 ....	9
Power of University to choose representative on General Medical Council .....	10
Exemption of University from rates .....	11
Saving for existing officers of Mason University College .....	12
Application of certain provisions of Scheme scheduled to Queen's College Birmingham Act 1867 .....	13
As to jurisdiction of Charity Commissioners ....	14
Costs of Act .....	15

## AN ACT

To Transfer all the property and liabilities of Mason University College in the City of Birmingham, and to repeal the Mason University College Act, 1897; to confer certain powers on the said University; and for other purposes.

(*Royal Assent, 25th May, 1900.*)

WHEREAS the late Sir Josiah Mason founded out <sup>Preamble.</sup> of his own resources in Birmingham an institution for the promotion of thorough systematic education and instruction specially adapted to the practical mechanical and artistic requirements of the manufacturers and industrial pursuits of the Midland District of England which subsequently became known as the Mason Scientific College :

And whereas the said Institution was by the Mason University College Act 1897 incorporated under the name of Mason University College with a new constitution and powers and all the lands and other property vested in the Trustees of the said Institution were by the said Act vested in the said College :

And whereas the said Act expressly contemplated that the said College might become a member of a University to be established having power to grant degrees in arts sciences medicine and surgery :

And whereas upon the petition of the said College and of the Corporation of the City of Birmingham and of the School Board for the said City and of the Governors of the Grammar School of King Edward the

Sixth in the said City and others Her Majesty has been pleased to grant a Charter establishing in the said City of Birmingham a University by the name and style of the University of Birmingham with faculties of Science Arts Medicine and Commerce and such other faculties as the Statutes of the University may from time to time prescribe :

And whereas the said Charter directs that the University shall be both a Teaching and an Examining University and shall further the prosecution of original research in all its branches :

And whereas the Governors of the said College are desirous and it is expedient that the College be merged in the University and that all its property and liabilities be transferred to and vested in the University and that the Mason University College Act 1897 be repealed :

And whereas the Council of the City of Birmingham and the Overseers of the Poor of the Parish of Birmingham are desirous and it is expedient that the exemption from local rates granted to the said College be continued to the said University :

And whereas it is expedient to empower the said University to hold examinations under section three of the Medical Act 1886 and to elect a representative on the General Council mentioned in section seven of the same Act :

And whereas it is provided by a Scheme made by the Court of Chancery which is scheduled to and confirmed

by the Queen's College Birmingham Act 1867 that the physicians and surgeons of the Queen's Hospital at Birmingham shall hold their respective offices on condition of giving to all students of the Queen's College at Birmingham such clinical instruction in kind and quantity and in such manner as shall from time to time be required by the medical examining boards therein referred to and that the students of the said College shall at all times have free access to the said Hospital for the purposes of clinical instruction upon payment of such fees and on such other terms and conditions as shall be from time to time agreed and that any dispute between the said College and the said Hospital regarding such fees terms or conditions or otherwise regarding the privileges to be enjoyed by the students of the said College or any such dispute as therein mentioned between the said Hospital and any physician or surgeon thereof shall be referred to the visitor of the said College whose decision shall be binding on the parties to the dispute.

And whereas in pursuance of an Order of the Chancery Division of the High Court made by the Hon. Mr. Justice Chitty at Chambers on the twenty-second day of June one thousand eight hundred and ninety-two the medical and dental departments of the said Queen's College were closed and abandoned and the anatomical and other collections books and other things specified in the said Order and formerly belonging to the said Queen's College were handed over to and became the absolute property of the trustees of the Mason College.

And whereas the medical students of the Mason College have accordingly since the latter part of the year one thousand eight hundred and ninety-two received clinical instruction from the physicians and surgeons of the said Queen's Hospital :

And whereas it is now desirable to continue to the students in the Faculty of Medicine of the University the same rights and privileges as have been enjoyed first by the medical students of Queen's College and latterly by the medical students of Mason College under the provisions of the above recited Scheme and Order :

And whereas it is expedient that the other provisions contained in this Act be made.

And whereas the objects of this Act cannot be obtained without the authority of Parliament.

MAY IT THEREFORE PLEASE YOUR MAJESTY

That it may be Enacted and BE IT ENACTED by the Queen's Most Excellent Majesty by and with the advice and consent of the Lords Spiritual and Temporal and Commons in this present Parliament assembled and by the authority of the same as follows (that is to say) :—

Short title.

1.—This Act may be cited as the Birmingham University Act 1900.

Commencement  
of Act.

2.—This Act shall come into operation on the first day of October one thousand nine hundred which date is hereinafter referred to as the commencement of this Act.

3.—On the commencement of this Act Mason University College shall be dissolved and the Mason University College Act 1897 shall be repealed without prejudice to anything lawfully done or suffered thereunder and in particular without prejudice to the provisions of Part III. of the said Act for confirming or rendering valid certain leases sales exchanges estates interests rights payments and contracts therein referred to.

Dissolution of  
Mason  
University  
College and  
repeal of Act  
of 1897.

4.—On the commencement of this Act all property real and personal of every description (including things in action) which immediately before the passing therof belonged to or was vested in Mason University College shall be by virtue of this Act without any conveyance or other instrument transferred to and vested in the University of Birmingham for all the estate and interest therein of Mason University College and shall be applied to the objects and purposes for which the University is incorporated.

Transfer of  
Property to  
University of  
Birmingham

5.—(1) Any three Governors present at a meeting of the Council of the University and voting against any resolution passed or order made at such meeting with respect to any lease sale exchange mortgage disposition or contract or of relating to any property of the University or with respect to the borrowing of money may appeal against such resolution to the visitor subject to the following conditions :—

Appeal to  
visitor with  
respect to  
management of  
property, etc.

- (A) The appeal must be made in writing signed by the appellants within seven days after the date of the meeting.

- (b) Notice of the appeal stating the grounds thereof in writing signed by one or more of the appellants must be given to the Secretary of the University within the said period of seven days.
- (2) The visitor shall if desired hear the appellants and the Council and the decision of the visitor allowing disallowing or modifying the resolution or as the case may be shall be binding and final.

Transfer of liabilities to University of Birmingham.

6.—On the commencement of this Act all debts and liabilities of Mason University College shall be by virtue of this Act transferred and attach to and be discharged and satisfied by the University of Birmingham.

Saving for agreements deeds actions etc.

7.—All agreements awards contracts deeds and other instruments and all actions and proceedings and causes of action or proceedings which immediately before the commencement of this Act were existing or pending in favour of or against Mason University College shall continue and may be carried into effect enforced and prosecuted by or in favour of or against the University of Birmingham to the same extent and in like manner as if the University instead of the College had been party to or interested in the same respectively.

Transfer of powers to nominate members of certain governing bodies.

8.—The power or right of Mason University College to appoint or nominate a member of the Governing Body of any educational or charitable institution shall on the commencement of this Act be transferred to and

may be exercised by the Council of the University of Birmingham.

9.—The University of Birmingham is hereby empowered to hold qualifying examinations in medicine surgery and midwifery for the purpose of registration under the Medical Acts as if the University had been a university in the United Kingdom legally qualified at the passing of the Medical Act 1886 to grant diplomas in medicine and surgery ; and the provisions of Part I of that Act shall be read and have effect accordingly.

Power of  
University of  
Birmingham  
to hold  
examinations  
under 49 & 50  
Vict. c. 48.

10.—The Council of the University of Birmingham shall be entitled to choose one representative to be a member of the General Council constituted by the Medical Acts ; and section seven of the Medical Act 1886 shall be read and have effect as if the University of Birmingham had been expressly included therein.

Power of  
University  
to choose  
representative  
on General  
Medical  
Council.

11.—The University of Birmingham shall not be assessed or rated to pay or contribute to any borough improvement or parochial rates in respect of any buildings lands or property of any description occupied by the University which were exempt from rating under the Mason University College Act 1897 : Provided always that the exemption herein contained shall not extend to any part of such buildings land and property which shall for the time being be occupied by any member officer or servant of the University and the parts of buildings so occupied shall be rated as separate tenements.

Exemption of  
University  
from rates.

Saving for  
existing officers  
of Mason  
University  
College.

12.—All professors and other members of the teaching staff of Mason University College and all officers and servants of the College shall hold as nearly as practicable the same offices and places in the University of Birmingham as they held in the said College immediately before the commencement of this Act and upon the same terms and conditions unless and until the Council of the University otherwise decide.

Application of  
certain  
provisions of  
Scheme  
scheduled to  
Queen's College  
Birmingham  
Act, 1867.

13.—Clauses fifty and fifty-one of the Scheme set forth in the Schedule to the Queen's College Birmingham Act 1867 shall be read and have effect as if the University were mentioned therein instead of the College so that students in the faculty of medicine of the University shall have at all times provided for them by the physicians and surgeons of the Queen's Hospital at Birmingham such clinical instruction as therein mentioned and shall have free access to the said Hospital for the purposes of clinical instruction as therein mentioned. Provided that any such dispute between the University and the said Hospital or between the said Hospital and any physician or surgeon thereof as therein mentioned shall be referred to the visitor of the University whose decision shall be binding on the parties to the dispute.

As to  
jurisdiction of  
Charity  
Commissioners

14.—The Charitable Trusts Acts 1853 to 1894 shall not extend to the University of Birmingham or any College or Hall therein and the said University and any such College or Hall shall be exempt from the control or jurisdiction of the Charity Commissioners.

15.—The costs charges and expenses of and incidental Costs of Act. to preparing obtaining and passing this Act shall be defrayed by the University of Birmingham out of the income of the property by this Act transferred to the University or if the Council of the University think fit out of money representing capital or to be raised by sale or mortgage of some part of the said property.

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#### NOTE ON CLAUSE 13.

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By an Act entitled " An Act for the Regulation of the Queen's College at Birmingham and for incorporating the Queen's Hospital at Birmingham " but having the short title of " The Queen's College Birmingham Act 1867 " which received the Royal Assent on the 12th day of August 1867 the Queen's Hospital was separated from the Queen's College and separately incorporated by the title of " The Queen's Hospital Birmingham " but for the purpose of preserving the right the Queen's College had of clinical instruction for its students in the Hospital the following clauses Numbered 50 and 51 in the Scheme sanctioned by the Act were inserted in the Schedule to the Act :—

The Hospital shall be maintained as a Clinical Hospital and afford every facility for clinical instruction ; and such persons shall from time to time be appointed to be Physicians and Surgeons of the Hospital whose certificates as to clinical instruction shall be accepted by the Medical Examining Boards of the United Kingdom ; and such Physicians and Surgeons shall hold their respective offices on condition of giving to all

students of the *College* such clinical instruction in kind and quantity and in such manner as shall from time to time be required by the said Medical Examining Boards.

The students of the *College* shall at all times have free access to the Hospital for the purposes of clinical instruction, upon payment of such fees and on such other terms and conditions as shall be from time to time agreed upon between the Council and the Hospital. Any dispute between the *College* and the Hospital regarding such fees terms or conditions or otherwise regarding the privileges to be enjoyed by the students of the *College* under this clause or the preceding clause or any dispute between the Hospital and any Physician or Surgeon thereof as to the preceding clause shall be referred to the Visitor of the *College*, whose decision shall be binding on the parties to the dispute.

The effect of Clause 13 is to substitute *University* for *Queen's College*.

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## ORDINANCES OF THE UNIVERSITY.

MADE BY THE COUNCIL in accordance with the provisions of Section 14 of the Second Schedule to the Charter.

### FINANCES, INVESTMENTS, AND ACCOUNTS.

1.—The Finances, Investments, and Accounts of the University shall be controlled by the Council, who shall report thereon from time to time to the Court as may be required by the regulations of the Court.

### FEES.

2.—The payment and amount of fees to be exacted within the University or in relation to the enjoyment of privileges therefrom shall be determined by the Council.

### FELLOWSHIPS, SCHOLARSHIPS, EXHIBITIONS AND PRIZES.

3.—The provisions and tenure of Fellowships, Scholarships, Exhibitions, Prizes, Rewards, and pecuniary and other aids, shall be determined by the Council on the recommendation of the Senate.

### FACULTIES.

4.—The Members of the FACULTY OF SCIENCE shall be the Principal and Vice-Principal, and the Professors of Mathematics, Physics, Chemistry, Zoology, Botany, Geology, Engineering, Metallurgy, Mining, Brewing, and Education.

To this Faculty shall be attached the Professors of Anatomy, Physiology, Pathology and Bacteriology, Hygiene and Public Health, and Mental and Moral Philosophy.

5.—The Members of the FACULTY OF ARTS shall be the Principal and Vice-Principal, and the Professors of Latin and Greek, English, French, German, Mental and Moral

Philosophy, History, Education and Music, and the Lecturer on Spanish and Italian.

To this Faculty shall be attached the Professor of Mathematics.

6.—The members of the Faculty of Medicine shall be :—

The Principal and Vice-Principal.

The Professors of Anatomy, Physiology, Medicine, Surgery, Pathology and Bacteriology, Hygiene and Public Health, Therapeutics, Midwifery and Diseases of Women, Forensic Medicine and Toxicology.

The Lecturers on Operative Surgery, Midwifery and Diseases of Women, and Materia Medica (during the tenure of the present Lecturer), the Professor or Lecturer on Ophthalmology, and a Lecturer on Mental Diseases (nominated annually by the Lecturers in Mental Diseases).

A representative of the Dental Advisory Board, who shall be one of the University Lecturers in the Dental Department, to be elected annually by the Dental Advisory Board.

Two representatives of the University Clinical Teachers—one from the General Hospital and one from the Queen's Hospital—appointed annually by the University Clinical Board.

A representative of the Dental Clinical Board, to be appointed annually by the Dental Clinical Board from amongst the members of the Senior Staff of the Birmingham Dental Hospital.

One representative of the Lecturers in the Faculty of Medicine, to be appointed annually by those Lecturers who are not members of the Faculty.

To the Medical Faculty shall be attached the Professors of Physics, Chemistry, and Zoology.

In the nomination to Professorships the Professors of the Faculty alone shall have the power to vote.

7.—The Members of the FACULTY OF COMMERCE shall be the Principal and Vice-Principal, the Professors of Commerce, Finance, Accounting, and Commercial Law.

To this Faculty shall be attached the Professors of French, German, Mathematics, History, Mechanical Engineering and Metallurgy, the Lecturer on Spanish, and such Professors as may for the time being be taking part in the courses of study prescribed for degrees in Commerce.

8.—Professors or Lecturers attached to any Faculty without being Members shall receive notice of and shall be entitled to attend all meetings of such Faculty, but shall be entitled to vote only upon questions relating to the subjects of their respective Chairs or Lectureships.

#### DUTIES AND POWERS OF FACULTIES.

9.—Each Faculty shall have the right of taking into consideration all matters bearing upon its work and development.

10.—Subject to approval by the Senate and Council each Faculty shall be responsible for the transaction of all academic business specially pertaining to it.

11.—It shall be the duty of each Faculty, subject to review by the Senate and Council, to draft regulations as to degrees, diplomas, certificates, scholarships and prizes falling within the province of the Faculty, and to draft the courses of study and the time-tables and schemes of examinations of the Faculty.

12.—It shall be the privilege and duty of each Faculty to report, according to the method provided by the Regulations for the time being, upon the candidates for, or persons to be proposed for, appointment to all teaching posts and

examinerships belonging to the Faculty, before the appointments are made by the Council.

**APPOINTMENT AND TENURE OF OFFICE OF PROFESSORS,  
LECTURERS, TEACHING STAFF AND OFFICERS.**

13.—The manner of appointment and the duties of the Professors, Lecturers, Teaching Staff, External Examiners and Librarian, shall in each case be determined by the Council after report thereon by the Senate.

14.—The duties of the Registrar shall be determined by the Council, after report thereon by the Senate.

15.—The emoluments, allowances, and salaries of the officers of the University, its Professors, Lecturers, Teaching Staff, Secretary, Registrar, and servants shall be determined by the Council.

16.—Professors and Independent Lecturers shall hold office during good behaviour, but may be removed by the Council for good cause as defined by the Statutes of the University; provided also that it shall be competent for the Senate, either on its own initiative or upon request by the Council, to take into consideration the case of any Professor or Independent Lecturer, and for a majority of the members of the Senate present and voting at a duly convened meeting of the Senate (such voting to be by ballot), to represent to the Council that in the general interest of the University or for some special reason it is desirable that the engagement of any Professor or Independent Lecturer should be determined, and upon receipt of such representation the Council may terminate the engagement of such Professor or Lecturer by six months' notice in writing.

17.—The engagements of members of the teaching Staff (other than Professors and Independent Lecturers) and of the Secretary, Registrar, officers, and servants of the University may, subject to any special provision in the terms of their engagements, respectively, be determined by three months' notice in writing on either side.

### PROFESSORS AND LECTURERS.

18.—Each Professor and Lecturer shall, on his appointment, enter into an agreement with the University, which shall indicate :—

- (i.) The subject or subjects committed to the office undertaken ;
- (ii.) The arrangement as to stipend ;
- (iii.) Any special terms of the appointment.

19.—A Professor or Lecturer shall not resign his appointment except by three months' notice in writing, which notice shall end at the expiration of some one of the University terms as regulated by the Calendar of the University for the time being ; a Professor or Lecturer may, however, resign his appointment on the 30th of September in any year by giving notice in writing at any time in the preceding months of July or August, and the Council shall at all times have the power to waive notice to such extent as it may think fit.

20.—Every Professor and Independent Lecturer, while confining himself within the limits of the subject committed to his charge, shall have complete freedom of teaching, so far as the matter and methods of his instruction are concerned, subject only to the approval of his Faculty and of the Senate and Council in regard to the amount and times of his teaching and the scope and standard of such of his courses as form integral parts of Degree courses in the University.

### EMERITUS PROFESSORS.

21.—The Court shall have power on the recommendation of the Council to confer the title of Emeritus Professor upon any Professor of the University on or after his retirement, in recognition of conspicuous services to the University. The title "Emeritus Professor" shall

in no case be conferred unless the connexion with the University shall have extended over a period of not less than ten academic years, and then only so long as the Professor in question does not hold another office of a similar character. An Emeritus Professor shall, for all purposes of courtesy and on ceremonial occasions, be upon the same footing as members of the Senate, but shall not be entitled to perform any administrative or executive functions as a member of the Senate or otherwise. A previous and continuous term of service in Mason University College or in Mason College, Birmingham, or in the Faculty of Medicine of Queen's College, Birmingham, shall be deemed to be service in the University for the purposes of this Ordinance.

#### SPECIAL LECTURERS OR READERS.

22.—The Council shall have power on the recommendation of a Faculty and of the Senate to appoint as special University teachers persons whether on the regular teaching staff or not, and to recognise the courses delivered by them as qualifying courses for University Examinations and Degrees. Such persons shall be selected on the ground of scholarship or special knowledge and ability, and shall be appointed on such terms of tenure and status as the Council may decide.

#### DISCIPLINE.

23.—Every student shall be subject to such regulations as shall from time to time be passed by the Senate and approved by the Council.

24.—There shall be a Committee of Discipline, consisting of the Principal, the Vice-Principal, the Deans of the Faculties, and the Secretary of the University; which Committee shall report to the Senate.

25.—Every Professor, Reader, Lecturer, Assistant Lecturer, or Demonstrator shall have the power, and it shall be his duty, to check any disorderly conduct that

may occur in a class room or laboratory, and if he deem it necessary may require any student to withdraw from the room for the day. In the event of such an occurrence in a room under the charge of an Assistant Lecturer or Demonstrator, he shall report the matter without delay to his Professor or immediate chief.

26.—Professors, Lecturers, and other officers shall have the power to check disorderly or improper conduct, or any breach of Regulations arising in any part of the precincts of the University.

27.—Any member of the Discipline Committee shall have power to exclude any student from the University or its precincts until the next meeting of the Discipline Committee which shall be held as soon as possible after each such exclusion, and the circumstances of the case shall be laid before the meeting for further adjudication.

28.—The Discipline Committee shall have power to suspend any student from attendance at the University for any period not extending beyond the next meeting of the Senate. Every such suspension shall be reported to the Senate at its next meeting, and the Senate shall have power to extend the period of suspension for the remainder of a University term, and subject to the approval of the Council, to expel.

29.—Habitual neglect of work in any class shall be regarded as a breach of discipline, and may subject the student to suspension.

#### MATRICULATION.

30.—Matriculation is the formal admission of a student to membership of the University.

31.—An Examination called the Matriculation Examination shall be held by the University at least once in each year at such time and in such subjects and under such conditions as may be prescribed by Regulations.

32.—Any person who shall have paid to the University the prescribed fee, and shall have satisfied such other conditions as may be prescribed by Regulations, shall be entitled to be admitted to the Matriculation Examination.

33.—The University may by Regulations recognise the Matriculation or any other examination or examinations of any British or foreign University or of any public Educational Authority in his Majesty's dominions as exempting from the Matriculation Examination of the University or from any part thereof.

34.—Any person who shall have passed the Matriculation Examination, or a Schools' Leaving Examination of the University, or other examination or examinations recognised by the University as exempting from the Matriculation Examination, and shall have paid to the University the fee prescribed by these Ordinances, and shall have satisfied such other conditions as may be prescribed by Regulations, shall be entitled to be matriculated.

#### UNDERGRADUATES AND OTHER STUDENTS.

35.—Every person who has been matriculated shall be entitled to the privileges of membership of the University and of the Guild of Undergraduates, so long as he is in actual attendance on a course of study in the University approved by a Faculty of the University, but no longer.

36.—The University may admit all persons who shall have satisfied such conditions as may be prescribed by Regulations to any of the courses of study offered by the University, although they have not passed the Matriculation Examination or any examination exempting from the Matriculation Examination; but such students shall not be entitled to be matriculated or to be members of the Guild of Undergraduates, nor shall they be entitled to wear the academic dress prescribed for Undergraduates.

**DEGREES IN THE FACULTIES OF SCIENCE, ARTS, AND COMMERCE.**

37.—In the Faculty of Science there shall be the following degrees, viz. :—

Bachelor of Science,	to be denoted by the letters	B.Sc.
Master of Science	"	M.Sc.
Doctor of Science	"	D.Sc.

In the Faculty of Arts there shall be the following degrees, viz. :—

Bachelor of Arts,	to be denoted by the letters	B.A.
Master of Arts	"	M.A.
Doctor of Letters	"	D.Litt.
Doctor of Philosophy	"	D.Phil.
Bachelor of Music	"	B.Mus.
Doctor of Music	"	D.Mus.

In the Faculty of Commerce there shall be the following degrees, viz. :—

Bachelor of Commerce, to be denoted by the letters  
B.Com.

Master of Commerce, to be denoted by the letters  
M.Com.

38.—The courses of study and the number and nature of the examinations qualifying for admission to these degrees respectively shall be prescribed by regulations.

39.—Attendance upon courses of study in the University shall not in general be accepted as any part of the qualification necessary for a degree unless the candidate for the degree shall have previously been matriculated ; but in exceptional cases the Senate may recognise as part of such qualification attendance on courses of study taken previous to matriculation, provided always that no

examination passed previous to matriculation be recognised as a qualifying University Examination.

40.—Except as hereinafter provided, no candidate shall be admitted to the degree of Bachelor until he shall have attended in the University the prescribed courses of study extending over a period of at least three years.

41.—No Bachelor of the University shall be admitted to the degree of Master until at least one year after the time of his admission to the degree of Bachelor.

42.—No Bachelor or Master of the University shall be admitted to the degree of Doctor until at least two years after the time of his admission to the degree of Bachelor.

43.—The Senate shall have the power of admitting graduates or persons who have passed Degree Examinations of other Universities to the courses and examinations for the higher degrees of Master and Doctor under conditions prescribed by the Regulations without requiring such persons to attend the courses of study or pass the examinations qualifying for the degree of Bachelor. Such students after being matriculated shall be called Graduate students, and shall be members of the Guild of Undergraduates

44.—The Senate shall have the power of recognising attendance at another University or University College as part of the attendance qualifying for the Degree of Bachelor, and of recognising examinations passed at such other University as exempting from the first year's examination for such degree; provided that no candidate from another University be admitted to the Degree of Bachelor until he shall have attended in the University the prescribed courses of study extending over a period of at least two years.

## PAST STUDENTS OF MASON UNIVERSITY COLLEGE.

45.—Students who have passed the Intermediate Examination in Science or Arts of the University of London after at least one session of regular study at Mason University College shall be excused the First Year's Course and the Intermediate Examination, and shall enter on the Degree Course as second year students of the University.

46.—Persons who, on October 1st, 1900, were regular students of Mason University College having passed the Intermediate Examination in Science or Arts of the University of London, and having subsequently spent at least one session at the College in regular study for the Final Examination, may be excused the first two years and the Intermediate Examination and may enter as third year students of the University if, in the opinion of their Faculty, they have fulfilled in the College conditions sufficiently nearly corresponding to those laid down for second year students.

47.—Persons who, on October 1st, 1900, were regular students of Mason University College having passed the Intermediate Examination in Science or Arts of the University of London, and having subsequently spent at least two sessions at the College in regular study for the Final Examination may be excused the Intermediate Examination and further attendance at lectures, may enter the University and take rank as if they had completed three years at the University, and may present themselves at a Final Examination for a Degree if, in the opinion of their Faculty, they have fulfilled in the College conditions sufficiently nearly corresponding to those laid down for second and third year students of the University.

48.—Past Students of Mason University College who have passed the Bachelors' Examination in the University of London, after a course of at least one year's regular study at Mason University College in two subjects at least, shall be permitted to enter the University and present

themselves at the Examination for the Masters' Degree after at least one further year of study at the University, as if they had taken the Bachelor's Degree of the University of Birmingham.

#### DEGREES IN THE FACULTY OF MEDICINE.

49.—In the Faculty of Medicine there shall be the following degrees, viz. :—

Bachelor of Medicine,	to be denoted by the letters	M.B.
Doctor of Medicine	"	M.D.
Bachelor of Surgery	"	Ch.B.
Master of Surgery	"	Ch.M.
Bachelor of Science in Public Health	"	B.Sc. (Public Health)
Master of Science in Public Health	"	M.Sc. (Public Health)
Bachelor of Dental Surgery	"	B.D.S.
Master of Dental Surgery	"	M.D.S.

50.—In the Faculty of Medicine there shall be a Diploma in Dental Surgery, entitled Licentiate in Dental Surgery (L.D.S.), which shall be registrable in accordance with the Dentists Act, 1878 (41 and 42 Vict., xxxiii., Clause xviii.).

51.—The courses of study and the number and nature of the examinations qualifying for admission to these degrees, respectively, and to the Licentiate of Dental Surgery, shall be prescribed by Regulations.

52.—No attendance upon courses of study in the University shall be accepted as any part of the qualification for a degree, unless the candidate for the degree shall have previously passed the Matriculation Examination of the University as prescribed for Medical students or an examination recognised by the University as exempting from same.

53.—Except as hereinafter provided, no candidate shall be admitted to either or both of the degrees of Bachelor of Medicine and Bachelor of Surgery unless he shall have attended the courses of study prescribed by Regulations

extending over a period of at least five years after matriculation, of which the first four years must be spent in the University, and the fifth year either in the University of Birmingham or some other school or schools of medicine recognised for this purpose by the University.

54.—No candidate shall be admitted to the higher degrees of Master of Surgery or Doctor of Medicine unless he has attained both the degrees of Bachelor of Medicine and Bachelor of Surgery in the University, and until a further year shall have elapsed after such Bachelor's degrees were conferred.

55.—No candidate shall be admitted to the degree of Bachelor of Science in Public Health unless he has previously attained to both the degrees of Bachelor of Medicine and Bachelor of Surgery in the University.

56.—No candidate shall be admitted to the degree of Bachelor of Dental Surgery who has not obtained a License in Dental Surgery from some body legally entitled to confer such qualification, and until a period of twelve months shall have elapsed after he obtained such License.

57.—No candidate shall be admitted to the degree of Master of Dental Surgery unless he shall have previously attained to the degree of Bachelor of Dental Surgery, and until a further period of twelve months shall have elapsed after he obtained such Bachelor's degree.

58.—Notwithstanding the preceding ordinance, the Senate shall have the power of admitting graduates or persons who have passed Degree Examinations of other Universities to the courses and examinations for the higher degrees of Master and Doctor under conditions prescribed by Regulations without requiring such persons to attend the courses of study or pass the examinations qualifying for the degree of Bachelor. Such students shall be called Graduate Students, and shall be members of the Guild of Undergraduates

59.—The Senate shall have power of recognising attendance at another University as part of the attendance qualifying for the degrees of Bachelor of Medicine and Bachelor of Surgery, and of recognising examinations passed at such other Universities as exempting from the examination in Chemistry, Physics, and Comparative Anatomy, for such degrees, provided that no candidate from another University be admitted to the degree of Bachelor until he shall have attended in the University the prescribed courses of study extending over a period of at least three years.

PAST STUDENTS OF THE BIRMINGHAM SCHOOLS OF MEDICINE AND DENTISTRY.

60.—Persons who, on October 1st, 1900, were students of the School of Medicine and who originally entered as first year students of the school, and have since regularly pursued their studies in the school, shall be permitted to present themselves for the examinations of the University without passing its matriculation examination, and without repeating any courses of lectures which they may already have taken out.

61.—Students of the School of Medicine falling under the above category who have passed any medical examinations in any British or Irish University shall be allowed to count such examination or examinations in lieu of the corresponding examination or examinations in the University of Birmingham, but no such allowance shall be made in the case of students who have passed examinations conducted by licensing bodies other than Universities. Provided that in all cases it shall be essential that the student shall pass the Final Examination of the University of Birmingham.

62.—Past students of the Birmingham Medical School who have taken out their whole course in Birmingham, and are duly qualified Medical Men, shall be permitted at any period during the seven years commencing on the 1st of October, 1900, to present themselves for a Final Examination for the Degrees of Bachelor of Medicine and Surgery.

63.—Past students of the Birmingham Dental School (including those who qualified not later than the November, 1900, Examination of the Royal College of Surgeons of England) who have taken out their whole course in the Birmingham School, and are duly qualified and Registered Dental Surgeons, shall be permitted at any period during the seven years commencing on the 1st of October, 1900, to present themselves for a Final Examination for the Degree of Bachelor of Dental Surgery.

64.—That Students who enter the Department of Dentistry in Mason University College in the years 1897 to 1899 inclusive, and have obtained both the License in Dental Surgery and the qualifications in Medicine and Surgery from some body legally qualified to confer such qualifications, and produce evidence that after having obtained the License in Dental Surgery they have received instruction in the Dental Department of a General Hospital for a period of not less than six months, be admitted to the Degree of Bachelor in Dental Surgery on passing the final examination for such degree held by the University.

#### EXTERNAL EXAMINERS.

65.—The appointments of External Examiners shall be made in the first instance for one year, but may be renewed annually for the two following years.

#### EXAMINATIONS AND BOARDS OF EXAMINERS.

66.—The Matriculation Examination of the University shall be conducted by Professors or Lecturers of the University appointed for this purpose by the Senate, without the assistance of External Examiners.

67.—Class Examinations and Examinations provided for students who are neither undergraduates nor candidates for any degree of the University shall be conducted by the Professors or Lecturers of the University without the assistance of External Examiners.

68.—There shall be a Board of Examiners for the Matriculation Examination, consisting of the Principal and Vice-Principal, the Examiners who are taking part in the Examination, and the Professor of Education, the Principal being Chairman of the Board.

69.—For every University Examination prescribed by the Regulations for Degrees of the University there shall be a Board or Boards of Examiners, consisting of the internal and external Examiners who are taking part in the conduct of the Examination, together with the Dean of the Faculty to which the Examination belongs. The Dean of the Faculty shall be the Chairman of all such Boards of Examiners as belong to that Faculty.

70.—The Principal and Vice-Principal shall be members of all the Boards of Examiners.

#### SCHEDULES OF QUALIFICATION.

71.—Before admission to any University Examination each candidate is required to present to the Registrar a Schedule of Qualification certifying that he has attended the lectures, classes, laboratory or hospital instruction prescribed by the Regulations for that Examination to the satisfaction of the Professors or other teachers concerned, and that he has passed such class examinations and performed such other exercises as his teachers may prescribe in connexion with their own courses, to the satisfaction of the Faculty.

#### DEGREES, DIPLOMAS, SCHOLARSHIPS, AND OTHER UNIVERSITY HONOURS.

72.—The ordinary Degrees, Diplomas, Certificates, Scholarships, Prizes, and Honours of the University (except Honorary Degrees) shall be awarded by the Council on the nomination of the Senate.

73.—Honorary Degrees may be conferred upon persons approved by the Council on the nomination of the Senate.

74.—Degrees whether ordinary or honorary shall be conferred at a special congregation of all members of the University to be held for the purpose at least once a year, and such persons other than members of the University as the Council may direct shall be invited to be present. The formal admission of persons to degrees shall be made by the Chancellor, or in his absence by the Vice-Chancellor, or in the absence of both by the Pro Vice-Chancellor or Principal. Recipients of ordinary degrees shall be presented to the Chancellor or Vice-Chancellor by the Dean of the Faculty to which the degree belongs. Each recipient of an Honorary Degree shall be presented by a member of the University specially appointed for the purpose by the Council; provided that no person shall be admitted to any degree, ordinary or honorary, until he has signed the Register of Graduates and paid the fees prescribed. No University fee shall be required of persons admitted to Honorary Degrees.

75.—Notwithstanding this ordinance, degrees may in exceptional cases, on the recommendation of the Senate, be conferred upon persons *in absentia*, by special warrant, signed by the Chancellor or the Vice-Chancellor.

76.—The Council may on the recommendation of the Senate, revoke the Degree or Degrees, Diplomas, Certificates and distinctions and all privileges connected therewith of any graduate of the University who shall be convicted of felony or of any indictable misdemeanour, or whose name shall have been removed for misconduct by a properly constituted legal authority from any official register or roll of members of the profession to which he belongs, and may restore on cause being shown any person whose degree has been revoked to the degree he previously enjoyed without further examination.

77.—Degrees may be conferred on members of the teaching staff and other officers of the University *ex-officio*.

## INSPECTION OF SCHOOLS.

78.—The regulations for the inspection and Examination of Schools and other Institutions, and the scholars and students therein, and the regulations for the award of certificates of proficiency, shall be determined by the Council after report thereon by the Senate.

## AFFILIATED INSTITUTIONS.

79.—A College, School, or other Educational Institution in the Midland Counties may apply to be recognised as an affiliated institution of the University. Such recognition shall only be given upon evidence of efficiency satisfactory to both Senate and Council. Students of any such affiliated Institution shall be permitted to attend at such Institution a course of study approved by the University instead of the whole or part of the first year's course of study at the University, in the Faculties of Science, Arts, Medicine or Commerce ; and after presentation of Schedules of Qualification certifying that they have attended the classes and laboratory instruction and passed the class examinations prescribed by the University, and have been matriculated in the University, shall be admitted to the first University Examinations in those Faculties.

80.—Any College, School, or Institution desiring to take advantage of the foregoing ordinance must—

- (a) Give satisfactory evidence of its educational status and that it is established on a permanent and effective footing.
- (b) Submit, for the approval of the Senate, courses of study of such scope and standard as may be accepted by the University instead of the whole or part of the first year's courses in the Faculties of Science, Arts, Medicine and Commerce, or any part thereof.

81.—The University shall in no case grant the privilege of this ordinance to any College, School, or Insti-

tution for a period of more than five years, but such privilege may be renewed for a further period after a report from the Senate.

82.—The University reserves the right of inspecting the libraries, laboratories, and the equipment and apparatus provided for practical work, and of enquiring into the qualifications of the teachers appointed to conduct the qualifying courses.

#### ASSOCIATE MEMBERS OF THE GUILD OF GRADUATES.

83.—Persons who were Associates of Mason University College on October 1st, 1900, may be admitted as Associate Members of the Guild of Graduates, and shall have the same privileges as other Members of the Guild except the power of voting at the election by the Guild of Members of the Court.

84.—Associates may make application to their respective Faculties on or before 1st October, 1905, for admission to the Degree of Bachelor. They will be required to submit at the same time copies of their contributions to Medicine, Science, or Literature, or a Thesis specially composed for the occasion, and an account of the appointments which they hold or have held. These papers shall be submitted to Assessors, one of whom shall be an external examiner, and in the event of a Thesis having been submitted, these Assessors shall be at liberty to question the candidate upon it, should they see fit, or to call upon him to pass any examination they may think proper. On the report of the Assessors the Faculty shall decide in each case whether they will recommend the Senate to nominate the candidate for a Degree.

85.—The fee payable by Associates who are Candidates for any degree shall be £5.

86.—Students and members of the staff of Mason University College who would have been eligible for the Associateship before 30th September, 1901, had the College continued to exist, shall be permitted to apply for admission to the above privileges before the 30th September, 1901.

### THE GUILD OF GRADUATES.

87.—Every person who has been admitted to a Degree in any Faculty of the University shall, after the lapse of such time as may hereinafter be prescribed by regulations, be eligible to be a Member of the Guild of Graduates, and may be elected a Member of the Guild after payment of such fee as may also be so prescribed.

88.—The Guild of Graduates shall be an organised Association of Graduates for the furthering of their common interests, and shall be the recognised means of communication between the Graduates on the one hand and the Court of Governors, Council, Senate, and other authorities of the University on the other hand.

89.—The Guild of Graduates may make laws for its internal management and administration, and the election of its officers, the alteration of its laws and all other matters requiring to be dealt with.

### THE GUILD OF UNDERGRADUATES

90.—All matriculated students of the University shall be members of the Guild of Undergraduates, and shall remain members so long as they are in actual attendance on a systematic course of study approved by a Faculty of the University for a Degree, notwithstanding that they may have become members of the Guild of Graduates.

91.—The Guild of Undergraduates shall be an organised association of the students of the University for the furthering of their common interests, and shall be the recognised means of communication between the students on the one hand and the Court of Governors, Council, Senate, and other authorities of the University on the other hand.

92.—The Guild of Undergraduates may make laws for its internal management and administration, the election of its officers, the alteration of its laws and all other matters requiring regulation, but no law shall be effective until approved by the Council.

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Principal Sir OLIVER J. LODGE ( <i>Chairman</i> )	.. .. ..	.. 16th June, 1900
Mariemont, Edgbaston.		
Professor R. S. HEATH ( <i>Vice-Chairman and Secretary</i> )	.. .. ..	.. 21st May, 1884*
The Gables, 359, Bristol Road.		
Professor BOSTOCK HILL .. .. ..	.. .. ..	.. 9th July, 1879†
Professor E. A. SONNENSCHEIN .. .. ..	.. .. ..	.. 15th Nov., 1882*
30, Calthorpe Road, Edgbaston.		
Professor R. SAUNDBY .. .. ..	.. .. ..	.. 5th July, 1892*
Professor PERCY F. FRANKLAND .. .. ..	.. .. ..	.. 6th June, 1894*
West Heath Road, Northfield.		
Professor F. W. BURSTALL .. .. ..	.. .. ..	.. 29th July, 1896*
170, Middleton Hall Road, King's Norton.		
Professor J. H. MUIRHEAD .. .. ..	.. .. ..	.. 29th Sept., 1897*
The Rowans, Balsall, Warwickshire.		
Professor ADRIAN J. BROWN .. .. ..	.. .. ..	.. 3rd May, 1899*
West Heath House, Northfield.		
Professor R. F. C. LEITH .. .. ..	.. .. ..	.. 7th June, 1899*
16, Portland Road, Edgbaston.		
Professor J. T. J. MORRISON .. .. ..	.. .. ..	.. 7th June, 1899*
Professor E. W. WACE CARLIER .. .. ..	.. .. ..	.. 5th July, 1899*
Granville Road, Dorridge.		
Professor W. J. ASHLEY .. .. ..	.. .. ..	.. 31st July, 1901
3, Yateley Road, Edgbaston.		
Professor T. TURNER .. .. ..	.. .. ..	.. 5th March, 1902
75, Middleton Hall Road, King's Norton.		
Professor ALFRED HUGHES .. .. ..	.. .. ..	.. 10th June, 1903
29, George Road, Edgbaston.		
Professor GIBBERT KAPP .. .. ..	.. .. ..	.. 1st Oct., 1905
43, Upland Road, Selly Park.		
Professor A. W. KIRKALDY .. .. ..	.. .. ..	.. 4th July, 1906
Norlands, Richmond Hill Road, Edgbaston.		
Professor KARL WICHMANN .. .. ..	.. .. ..	.. 2nd Oct., 1907
80, Carless Avenue, Harborne.		
Professor JOHN CADMAN .. .. ..	.. .. ..	.. 8th July, 1908
61, Wellington Road, Edgbaston.		
Professor GRANVILLE BANTOCK .. .. ..	.. .. ..	.. 4th Nov., 1908
30, Elvetham Road, Edgbaston.		
Professor E. DE SELINCOURT .. .. ..	.. .. ..	.. 2nd Dec., 1908
30, George Road, Edgbaston.		
Professor C. R. BEAZLEY .. .. ..	.. .. ..	.. 26th May, 1909
48, Hagley Road, Edgbaston.		
Professor HENRI L. CHATELAIN .. .. ..	.. .. ..	.. 30th June, 1909
1, West Hill Road, King's Norton.		
Professor G. S. WEST .. .. ..	.. .. ..	.. 30th June, 1909
36, Carpenter Road, Edgbaston.		
Professor F. W. GAMBLE .. .. ..	.. .. ..	.. 30th Sept., 1909
Scarfields House, Alvechurch.		
Professor PETER THOMPSON .. .. ..	.. .. ..	.. 30th Sept., 1909
14, Rotton Park Road, Edgbaston.		
Professor Sir ROBERT M. SIMON .. .. ..	.. .. ..	.. 19th Jan., 1910
Professor CHARLES E. MARTINEAU .. .. ..	.. .. ..	.. 6th July, 1910
Beechcroft, Solihull.		
Professor THOMAS WILSON .. .. ..	.. .. ..	.. 6th Nov., 1912
Professor W. F. HASLAM .. .. ..	.. .. ..	.. 4th June, 1913
Professor OTTO J. KAUFFMANN .. .. ..	.. .. ..	.. 4th June, 1913
Professor W. S. BOULTON .. .. ..	.. .. ..	.. 4th June, 1913
103, Oakfield Road, Selly Park.		
Professor C. A. LEEDHAM-GREEN .. .. ..	.. .. ..	.. 2nd July, 1913
Professor F. C. LEA .. .. ..	.. .. ..	.. 15th Oct., 1913
36, Mayfield Road, Moseley.		
Professor F. TILLYARD .. .. ..	.. .. ..	.. 3rd Dec., 1913
27, Fountain Road, Edgbaston.		

\* Mason College. † Queen's College.

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The VICE-PRINCIPAL  
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Professor BOULTON  
Professor BROWN  
Professor BURSTALL  
Professor CADMAN.

Professor GAMBLE  
Professor HUGHES  
Professor KAPP  
Professor LEA.  
Professor TURNER  
Professor WEST

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Professor CARLIER  
Professor LEITH

Professor MUIRHEAD  
Professor THOMPSON

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Professor BANTOCK  
Professor BEAZLEY  
Professor CHATELAIN

Professor DE SELINCOURT  
Professor MUIRHEAD  
Professor SONNENSCHEIN  
Professor WICHMANN  
Mr. DE ARTEAGA

#### *Attached Member :*

Professor HEATH.

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Professor HASLAM  
Professor HILL  
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Professor LEITH  
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Dr. C. E. PURSLOW  
Dr. T. SYDNEY SHORT.  
Dr. THOMAS YEATES

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Professor GAMBLE

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Professor KIRKALDY  
Professor MARTINEAU  
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Professor BURSTALL  
Professor CHATELAIN  
Professor HEATH

Professor TURNER  
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Mr. DE ARTEAGA

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### Vice-Principal :

PROFESSOR R. S. HEATH.

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<i>Faculty of Arts</i>	.. ..	Professor ALFRED HUGHES.
<i>Faculty of Medicine</i>	.. ..	Professor PETER THOMPSON
<i>Faculty of Commerce</i>	.. ..	Professor W. J. ASHLEY.

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### Registrar :

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JOSEPH E. COATES, M.Sc. (Wales).

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*Protozoologist*: TOM GOODEY, M.Sc.

GILBERT JOHNSON, M.Sc.

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*Lecturers* :  $\begin{cases} \text{E. J. KIPPS, M.Sc.; M.Inst.E.E.} \\ \text{THOMAS F. WALL, D.Sc. (Vic't.), D.Eng. (L'pool),} \\ \text{A.M.Inst.C.E., A.M.Inst.E.E.} \end{cases}$

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M. L. W. LAISTNER, B.A. (Cantab.).

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Mdlle. MARGUERITE SIREDEY.

**GERMAN LANGUAGE AND LITERATURE.***Professor* : KARL WICHMANN, M.A.; Ph.D. (Kiel).*Lecturer* : FRANCIS E. SANDBACH, M.A. (Cantab.), Ph.D. (Strass.).*Special Lecturer in Commercial German* F. E. SANDBACH, M.A.

## SPANISH AND ITALIAN.

*Lecturer* : F. DE ARTEAGA, M.A. ; M.A. (Oxon.).

MENTAL AND MORAL PHILOSOPHY AND  
POLITICAL ECONOMY.

*Professor* : JOHN H. MUIRHEAD, M.A. ; M.A. (Oxon.), LL.D  
(Glasgow).

*Lecturer* : JOHN W. HARVEY, M.A. (Oxon.).

## HISTORY.

*Professor* : C. RAYMOND BEAZLEY, M.A. ; D.Litt. (Oxon.),  
F.R.G.S., M.R.A.S., late Fellow of Merton College,  
Oxford.

*Lecturer* : ROSE SIDGWICK, M.A.

*Assistant Lecturer in Ancient History* :  
M. L. W. LAISTNER, B.A. (Cantab.)

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*Organising Professor* : ALFRED HUGHES, M.A. ; M.A. (Oxon.),  
B.A. (Manch.).

*Assistant* : MURIEL O. DAVIS.

## MUSIC.

*Richard Peyton Professor* : GRANVILLE BANTOCK, M.A.

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L. H. GREEN, M.A.

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## FACULTY OF MEDICINE.

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### HUMAN ANATOMY AND ANTHROPOLOGY.

*Professor* : PETER THOMPSON, M.D.; M.D., Ch.B. (Vict.).

*Lecturer* : THOMAS YEATES, M.B. C.M. (Edin.), B.Hy., D.H.P. (Durham).

*Demonstrators* : { VIOLET A. P. COGHILL, M.B., Ch.B. (Edin.).  
                          { BERNARD G. GOODWIN, F.R.C.S.

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*Demonstrators* : { SEYMOUR BARLING, M.B., M.S., F.R.C.S.

*Special Lecturer in Osteology* : THOMAS YEATES, M.B., C.M.

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*Lecturer* : GWYNNE MAITLAND, B.Sc., M.D., D.Phil. (Edin.)

### MEDICINE.

*Professor* : R. SAUNDBY, M.Sc.; M.D. (Edin.), F.R.C.P., LL.D.

*Professor* : OTTO J. KAUFFMANN, M.D.; F.R.C.P.

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### SURGERY.

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### PATHOLOGY AND BACTERIOLOGY.

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*Special Lecturer in Bacteriology of Public Health* : C. J. LEWIS, M.D., D.Sc. (Edin.), F.R.C.P.E.

*Junior Assistant* : LAURENCE BALL, M.B., B.S., M.R.C.P.

*Assistant Curators of the Pathological Museum* : 

J. T. HEWETSON, Ch.M. ; M.D. (Edin.), F.R.C.S. A. W. NUTHALL, Ch.M. ; M.R.C.S.
--

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*Lecturer :* Professor T. TURNER, M.Sc.; A.R.S.M., F.I.C.

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*Lecturer :* T. STACEY WILSON, M.D. (Edin.), F.R.C.P.

**SURGERY FOR DENTAL STUDENTS.**

*Lecturer :* ALBERT LUCAS, F.R.C.S.

**DENTAL MATERIA MEDICA.**

*Lecturer :* (Vacant).

**DENTAL BACTERIOLOGY.**

*Lecturer :* W. J. LOGIE, M.D.

*DENTAL CLINICAL LECTURERS AND TUTORS  
AT THE DENTAL HOSPITAL.*

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**LECTURERS**

F. W. RICHARDS, L.D.S.  
 F. H. GOFFE, L.D.S.  
 A. E. DONAGAN, M.A., L.D.S.  
 J. MOUNTFORD, L.D.S.  
 W. T. MADIN, B.D.S., L.D.S.  
 J. E. PARROTT, L.D.S.  
 W. M. KNOTT, L.D.S.  
 G. F. CALE-MATTHEWS, L.D.S.

**SENIOR ASSISTANT LECTURERS.**

A. H. PARROTT, B.D.S., L.D.S.  
 C. H. HOWKINS, M.R.C.S., L.R.C.P., L.D.S.  
 A. W. WELLINGS, M.D.S., L.D.S.  
 S. H. ROE, L.D.S.

**JUNIOR ASSISTANT LECTURERS.**

W. BOWATER, B.D.S., L.D.S., M.R.C.S., L.R.C.P.  
 HAROLD ROUND, M.D.S., L.D.S.

**TUTORS.**

Anæsthetics—R. H. ROLLINSON-WHITAKER, F.R.C.S.

Practical Dental Mechanics—S. H. ROE, L.D.S.

Operative Dental Surgery { HUMPHREY F. HUMPHREYS,  
 M.B., Ch.B., B.D.S., L.D.S.  
 N. A. AUSTIN, L.D.S.  
 R. A. BRODERICK, M.B., Ch.B.,  
 L.D.S.

Orthodontics—(Vacant).

*FACULTY OF COMMERCE.*

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**COMMERCE.**

*Professor* : W. J. ASHLEY, M.Com ; M.A. (Oxon.), Ph D. (Berolin), late Fellow of Lincoln College, Oxford.

*Assistant Lecturer* : EGBERT J. W. JACKSON, B.A. (Sheffield).

\*

**ACCOUNTING.**

*Professor* : CHARLES E. MARTINEAU, M.Com. ; M.A. (Cantab.), F.C.A.

**FINANCE.**

*Professor* : A. W. KIRKALDY, M.Com. ; M.A., B.Litt. (Oxon.).

**COMMERCIAL LAW.**

*Professor* : FRANK TILLYARD, M.Com. ; M.A. (Oxon.), Barrister-at-Law.

*EMERITUS PROFESSORS.*

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**ENGINEERING.**

*Professor:* ROBERT H. SMITH, M.I.M.E., Assoc. M.I.C.E.

**MEDICINE.**

*Professor:* ALFRED H. CARTER, M.Sc., M.D. (Lond.), F.R.C.P

**SURGERY.**

*Professor:* BENNETT MAY, M.Sc. ; M.B., B.S. (Lond.), F.R.C.S.

**MIDWIFERY AND DISEASES OF WOMEN.**

*Professor:* EDWARD MALINS, M.Sc. ; M.D. (Edin.), F.R.C.P.

**OPHTHALMOLOGY.**

*Professor:* PRIESTLEY SMITH, M.Sc. ; M.B., Ch.B., F.R.C.S.

**GEOLOGY.**

*Professor:* CHARLES LAPWORTH, LL.D., M.Sc. F.R.S.

## DAY TRAINING COLLEGE.

---

*Master of Method (Men) :* R. A. JONES, B.A. (Cantab).  
M.A. (Lond.).

*Assistants :* { FRANK THORNLEY, B.A.  
ERNEST S. WHITWORTH, M.Sc.

*Teacher of Music :* ARNOLD GRIFFIN.

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*Head Mistress (Women) :* MARY S. LILLEY, B.A. (Lond.) ;  
M.A. (Columb.).

*Assistants :* { FLORENCE C. M. CLARK, B.A. (Lond.).  
MILDRED F. FIELD, B.A. (Lond.).  
EDITH M. HENLEY, B.A. (Lond.).  
LILY HARRISON, Nat. Sci. Tripos, Camb.

*Teacher of Physical Training :* DOROTHY BOTT.

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### *Headmasters and Head Mistresses of Practising Schools :*

- HARRY R. BIRCH, St. Thomas' School.
- F. W. BUTTLER, Hope Street Council School.
- L. CHALENOR, Rookery Road Council School.
- JAMES FIELDEN, Bournville Council School.
- J. A. TOY, Grove Lane Council School.
- WILLIAM WHITE, Dennis Road Council School
- MARY H. JOLLY, Garrison Lane Council School.
- KATE H. HARRISON, Waterloo Road Infant School.
- KATE PALMER, Summer Lane Infants' School.
- HELANDE EMMA RIGBY, Great Charles Street School.
- LOUISA RILEY, Waterloo Road Council School.
- T. W. COOPER, Leigh Road Council School.
- KATE WHELDON, Leigh Road Infants' School.
- ALICE FOUNTAIN, Harborne Council School.
- GEORGINA J. HARVEY, Harborne Infants' School.
- G. M. D. MARKWICK, Golden Hillock Girls' School.
- M. SMYTH, Golden Hillock Infants' School.
- A. E. GREW, George Dixon Elementary School.
- WILLIAM HALE, Birchfield Road Council School, Handsworth.
- ANNIE J. DAWES, Fenthalm Road Council School, Erdington.
- H. DAVIS, Cromwell Street Council School.
- M. A. SAMUEL, Cromwell Street Infants' School.

**UNIVERSITY ORGANIST :**

C. W. PERKINS

**ESQUIRE BEDELL :**

HAMILTON McCOMBIE, M.A., Ph.D.

**LIBRARIAN :**

WILLIAM H. COPE.

**REGISTRAR'S CLERK :**

G. J. WALKER.

**CLERK TO THE DEAN OF THE FACULTY OF  
MEDICINE.**

A. H. MARSTON.

# UNIVERSITY EXAMINERS FOR DEGREES.

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## FACULTY OF SCIENCE.

SESSION 1913-14.

---

*Mathematics*.—CHARLES M. JESSOP, M.A., Professor of Mathematics, Armstrong College, Newcastle-on-Tyne.

Professor R. S. HEATH.

C. T. PREECE (Sub-Examiner for Intermediate Examinations).

*Physics*.—LIONEL R. WILBERFORCE, M.A. (Cantab.), Professor of Physics in the University of Liverpool.

Dr. G. A. SHAKESPEAR (Sub-Examiner for Intermediate Examinations).

*Chemistry*.—GEORGE SENTER, D.Sc. (Lond.), Ph.D. (Leip.), Reader in Chemistry in the University of London and Head of Chemical Department, Birkbeck College.

Professor PERCY F. FRANKLAND.

Dr. C. K. TINKLER (Sub-Examiner for Intermediate Examinations).

*Zoology*.—GEORGE H. CARPENTER, B.Sc., M.R.I.A., Professor of Zoology in the Royal College of Science, Dublin.

Professor F. W. GAMBLE

*Botany*.—JOHN B. FARMER, M.A., D.Sc. (Oxon.), F.R.S., Professor of Botany in the Imperial College of Science and Technology, South Kensington.

Professor G. S. WEST.

*Geology (including Geography).*—Sir THOMAS H. HOLLAND, K.C.I.E., D.Sc., F.R.S., Professor of Geology in the Victoria University of Manchester.

Professor W. S. BOULTON.

*Mechanical Engineering.*—ARNOLD H. GIBSON, D.Sc., A.M.I.C.E., M.I.M.E., Professor of Engineering at the University College, Dundee.

Professor F. W. BURSTALL.

*Civil Engineering.*—STEPHEN M. DIXON, M.Sc., M.A., B.A.I., M.Inst.C.E., Professor of Civil Engineering City and Guilds (Engineering) College, South Kensington.

Professor F. C. LEA.

*Electrical Engineering.*—MILES WALKER, M.A. (Cantab.), Professor of Electrical Engineering in the Victoria University of Manchester.

Professor GISBERT KAPP.

*Metallurgy.*—GEORGE T. HOLLOWAY, Assoc. R.C.S., Examiner in Metallurgy to the Institute of Chemistry.

Professor T. TURNER.

*Mining.*—WILLIAM GALLOWAY, D.Sc., F.G.S., formerly Professor of Mining at the University College of South Wales and Monmouthshire.

Professor JOHN CADMAN.

*Biology and Chemistry of Fermentation.*—ARTHUR HARDEN, Ph.D., D.Sc., F.R.S., Professor of Biochemistry at the University of London.

Professor A. J. BROWN.

*Brewing.*—JOHN M. LONES.

Professor A. J. BROWN.

## FACULTY OF ARTS.

SESSION 1913-14.

*Classics*.—ALBERT C. CLARK, M.A., D.Litt., Professor of Latin in the University of Oxford.

Professor E. A. SONNENSCHEIN

C. D. CHAMBERS (Sub-Examiner for Latin at Intermediate Examinations).

*English*.—OLIVER ELTON, M.A. (Oxon.), D.Litt., Professor of English Literature in the University of Liverpool.

Professor E. DE SÉLINCOURT.

Dr. M. MACMILLAN and GORDON HISLOP (Sub-Examiners for Intermediate Examinations).

*French*.—CHARLES A. MARTIN, Lic. es-lets, Head of the French Department in the University of Glasgow.

Professor HENRI L. CHATELAIN.

PAUL DEMEY and Dr. H. ASHTON (Sub-Examiners for Intermediate Examinations).

*German*.—JULIUS FREUND, M.A., Ph.D., Professor of German Language and Literature in the University of Sheffield).

Professor KARL WICHMANN.

Dr. F. E. SANDBACH (Sub-Examiner in Commercial German).

*Spanish and Italian*.—COLOMBO ANGELO TOLEDANO, Spanish Master at the Manchester Athenæum and Municipal School of Commerce.

F. DE ARTEAGA, M.A.

*Hebrew*: R. A. AYTOUN, M.A., Woodbrooke Settlement.

Professor W. F. LOFTHOUSE, M.A.

*Philosophy*.—ALFRED E. TAYLOR, M.A. (Oxon.), D.Litt. (St. And.), Professor of Moral Philosophy in the United College of SS. Salvator and Leonard, St. Andrews.

Professor J. H. MUIRHEAD.

*History*.—THE VEN. WILLIAM HOLDEN HUTTON, M.A., B.D., Fellow of St. John's College, Oxford, and Canon of Peterborough.

Professor C. R. BEAZLEY.

*Education*.—JOHN ADAMS, M.A., B.Sc., LL.D., Professor of Education in the University of London.

Professor A. HUGHES

MARY S. LILLEY, M.A.

R. A. JONES, M.A.

*Music*.—WILLIAM G. MCNAUGHT, Doctor of Music, Fellow of the Royal Academy of Music.

Professor GRANVILLE BANTOCK.

## FACULTY OF MEDICINE.

YEAR 1914.

---

*Anatomy*.—ARTHUR ROBINSON, M.D., F.R.C.S. Edin., Professor of Anatomy in the University of Edinburgh.

Professor PETER THOMPSON.

*Physiology*.—WILLIAM H. THOMPSON, M.D., Sc.D., F.R.C.S. (Eng.), King's Professor of Institutes of Medicine, Trinity College, Dublin.

Professor E. WACE CARLIER.

*Medicine*.—WILLIAM PASTEUR, M.D. (Lond.), F.R.C.P., Senior Physician to the Middlesex Hospital, London.

Professor R. SAUNDBY.

Professor OTTO J. KAUFFMANN.

(*Clinical*).—THOMAS SYDNEY SHORT, M.D., M.R.C.P.

*Surgery*.—WILLIAM THORBURN, F.R.C.S., M.D., B.S., B.Sc. (Lond.) Professor of Clinical Surgery in the Victoria University of Manchester.

Professor W. F. HASLAM.

Professor C. LEEDHAM-GREEN.

(*Clinical*).—Professor J. T. J. MORRISON.

*Ophthalmology*.—J. JAMESON EVANS, M.D.

*Pathology and Bacteriology*.—J. LORRAIN SMITH, M.A., M.D., F.R.S., Professor of Pathology in the University of Edinburgh.  
Professor R. F. C. LEITH.

*Hygiene and Public Health*.—ROBERT ARTHUR LYSTER, M.D., Ch.B., B.Sc. (Public Health), D.P.H., B.Sc. (Lond.), Tutor in Public Health and Lecturer in Forensic Medicine at St. Bartholomew's Hospital, London.

Professor A. BOSTOCK HILL.

*Therapeutics and Pharmacology and Materia Medica and Pharmacy*.—ROBERT BRIGGS WILD, M.D., F.R.C.P., M.Sc., Leech Professor of Materia Medica and Therapeutics in the Victoria University of Manchester.

Professor SIR ROBERT M. SIMON, Kt.

J. COOLE KNEALE, M.B., Ch.B.

*Midwifery and Diseases of Women*.—HENRY BRIGGS, M.B., F.R.C.S. (Eng.), Professor of Obstetrics and Gynaecology in the University of Liverpool.

Professor THOMAS WILSON.

(*Clinical*)—C. E. PURSLOW, M.D., M.R.C.P.

*Forensic Medicine and Toxicology*.—WILLIAM HENRY WILLCOX, M.D., B.Sc. (Lond.), F.R.C.P., D.P.H., F.I.C., Lecturer on Forensic Medicine at St. Mary's Hospital, London, Senior Scientific Analyst to the Home Office.

Professor J. T. J. MORRISON.

*Dental Subjects*.—MONTAGU F. HOPSON, L.D.S., R.C.S. (Eng.), F.L.S., Dental Surgeon to Guy's Hospital, and Lecturer on Dental Anatomy and Physiology in the Dental School of Guy's Hospital.

*Dental Mechanics and Clinical Dental Surgery*.—JAMES MOUNTFORD, L.D.S. (Eng.), Dental Surgeon to the Birmingham Dental Hospital.

Professor R. F. C. LEITH.

Professor T. TURNER.

JOHN HUMPHREYS, M.D.S., F.L.S.

A. E. DONAGAN, M.A.

ALFRED W. WELLINGS, B.D.S.

W. T. MADIN, B.D.S.

## FACULTY OF COMMERCE.

SESSION 1913-14.

---

*Commerce*.—LANGFORD L. PRICE, M.A., Fellow of Oriel College, Oxford, and Reader in Economic History in the University of Oxford.

Professor W. J. ASHLEY.

Professor A. W. KIRKALDY.

*Accounting*—OSWALD HOLT CALDICOTT, F.C.A., Vice-President of the Birmingham and District Society of Chartered Accountants.

Professor CHARLES E. MARTINEAU.

*Commercial Law*.—HENRY W. DISNEY, B.A. (Oxon.), Barrister-at-Law, Lecturer in the London School of Economics.

Professor FRANK TILLYARD.

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## REPRESENTATIVES OF THE UNIVERSITY ON SCHOOLS AND OTHER INSTITUTIONS.

---

- University of Liverpool Court of Governors*—Principal Sir OLIVER LODGE.\*
- University of Bristol Court of Governors*—Professor ALFRED HUGHES.\*
- Warwickshire County Association under Territorial and Reserve Forces Act, 1907*—NEVILLE CHAMBERLAIN, Esq.
- General Medical Council*—Professor R. SAUNDBY.
- Birmingham Board of Legal Studies*—Professor W. J. ASHLEY.
- Birmingham Chamber of Commerce, Council of*—  
Professor W. J. ASHLEY.
- Institute of Bankers, Local Committee*—Professor A. W. KIRKALDY.
- Poor Law Examination Board*—Professor FRANK TILLYARD.
- Headmasters' Association, Joint Scholarship Board*—  
Professor ALFRED HUGHES.
- Teachers' Registration Council*—Professor ALFRED HUGHES.
- Provincial Council on Agriculture*—Principal Sir OLIVER LODGE and  
Professors GAMBLE, HUGHES, and WEST.
- Harper Adams Agricultural College, Newport*—Professor ALFRED HUGHES.
- Central Council to administer and control the Federated Scheme of Superannuation*—Dr. R. S. HEATH.
- Education Committees*—
- Birmingham*—Professor ALFRED HUGHES.
  - Bridgnorth*—Mrs. WICHMANN, D.Litt.
  - Coventry*—Professor K. WICHMANN.
  - Longton*—Professor J. CADMAN.
  - Leicestershire*—Professor A. W. KIRKALDY.
  - Oldbury*—C. T. PREECE, Esq., M.A.
  - Rowley Regis*—Miss F. C. M. CLARK, B.A.
  - Shropshire*—Professor ALFRED HUGHES.
  - Smethwick*—Dr. HAMILTON McCOMBIE.
  - Staffordshire*—C. D. CHAMBERS, Esq., M.A.

\* Nominated by the Chancellor.

- Sutton Coldfield*—Professor E. DE SELINCOURT.  
*Tunstall*—F. HARRISON, Esq., M.A.  
*Warwickshire*—Professor C. E. MARTINEAU.  
*West Bromwich*—Miss M. O. DAVIS.  
*Wolverhampton*—Professor GISBERT KAPP.  
*Worcestershire*—Professor T. TURNER.  
*Burslem Exhibition Endowment*—F. HARRISON, Esq., M.A.  
*Alcester, Newport's School*—ARTHUR L. CHANCE, Esq.  
*Ashby-de-la-Zouch Grammar School*—Mrs. W. B. WORTHINGTON.  
*Atherstone Grammar School*—SHELDON R. HART, Esq., M.A.  
*Bablake School, Coventry*—Professor K. WICHMANN.  
*Bewdley Grammar School*—  
*Birmingham Blue Coat School*—Sir JOHN C. HOLDER, Bart., and  
Mr. JOSEPH JAMES.  
*Birmingham, King Edward's School*—SIR OLIVER LODGE.  
*Birmingham and Midland Institute*—Professor ALFRED HUGHES.  
*Brewood Grammar School*—R. MENTZ-TOLLEY, Esq.  
*Bridgnorth Grammar School*—Mrs. WICHMANN, D.Litt.  
*Burton-on-Trent Endowed School*—Professor A. J. BROWN.  
*Coleshill Grammar School*—T. H. POPE, Esq., B.Sc.  
*Coventry Grammar School*—Dr. T. WEBB FOWLER.  
*Derby School*—W. B. WORTHINGTON, Esq.  
*Dudley Educational Foundation*—Miss ROSE SIDGWICK, M.A.  
*Dudley Grammar School*—Professor A. HUGHES.  
*Dudley High School for Girls*—Miss ROSE SIDGWICK, M.A.  
*Dudley Training College*—Miss ROSE SIDGWICK, M.A.  
*Evesham, Prince Henry's Grammar School*—Dr. C. K. TINKLER.  
*Fentham's Charity*—GILBERT BARLING, Esq., and JOHN HENRY  
LLOYD, Esq.  
*Halesowen Grammar School*—Dr. FRANCIS E. SANDBACH.  
*Handsworth Grammar School*—Professor C. E. MARTINEAU and  
J. T. HOMER, Esq., J.P.  
*Hanley Castle Grammar School*—A. O. HOLBECHE, Esq., L.R.C.P.  
*Hartlebury Grammar School*—G. W. GROSVENOR, Esq., J.P.  
*Hinckley Grammar School*—Professor G. S. WEST.  
*Jackson's Charity*—Councillor A. G. ELLAWAY.

- Kibworth Beauchamp Grammar School*—Miss M. O. DAVIS.  
*Kidderminster Grammar School*—R. A. JONES, Esq., M.A.  
*Kinver Grammar School*—JOHN PRIESTLEY, Esq., M.R.C.S.  
*Lichfield Grammar School*—Professor FRANK TILLYARD.  
*Lutterworth Endowed Schools*—Dr. HAMILTON McCOMBIE.  
*Newcastle-under-Lyme High School*—Professor J. CADMAN.  
*Nuneaton Grammar School*—Dr. G. A. SHAKESPEAR.  
*Rugeley Grammar School*—C. D. CHAMBERS, Esq., M.A.  
*Stafford Girls' High School*—Miss ROSE SIDGWICK, M.A  
*Stafford, King Edward's School*—F. E. KITCHENER, Esq., M.A.  
*Stourbridge Grammar School*—ROWLAND HILL, Esq., M.A., LL.D.  
*Stratford-on-Avon, King Edward VI Grammar School*—Professor C. R. BEAZLEY.  
*Sutton Coldfield Grammar School*—Professor O. J. KAUFFMANN.  
*Tamworth Grammar School*—Professor F. W. GAMBLE.  
*Tamworth High School for Girls*—MRS. SONNENSCHEIN.  
*Tewkesbury Grammar School*—Dr. FOURNIER d'ALBE.  
*Walsall, Queen Mary's School*—Mrs. E. DE SÉLINCOURT.  
*Warwick, King's School*—The Hon. GERARD COLLIER.  
*Whitchurch Grammar School*—Dr. G. A. SHAKESPEAR.  
*Wolverhampton Grammar School*—Professor E. A. SONNENSCHEIN.  
*Wolverhampton High School*—Miss M. S. LILLEY, M.A.  
*Wolverley, Seabright's Endowed Schools*—Professor T. TURNER.  
*Yardley Charity Estate*—W. WRIGHT WILSON, Esq., F.R.C.S. (Edin.)
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## ACADEMIC COSTUME.

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### GOWNS.

*Undergraduates*.—Gown of black stuff, similar to the Oxford Scholars' Gown, with the fore-arm seam open.

*Bachelors*.—Gown of black stuff with an open sleeve.

*Masters*.—Gown of black stuff or silk, similar to a Cambridge M.A. Gown with ribbons, but with a  $\perp$ -shaped slit in the sleeve.

*Doctors*.—Robe of scarlet cloth of the same shape as the Cambridge Doctors' Gown, trimmed with silk of the colour characteristic of the Faculty.

*Doctors' Undress*.—Gown of black stuff or silk of the same shape as the Masters' Gown, but edged with braid.

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### HOODS.

#### FACULTY OF SCIENCE.

*B.Sc.*.—Black silk or stuff edged with silver-grey watered silk.

*M.Sc.*.—Black silk lined with silver-grey watered silk.

*D.Sc.*.—Scarlet cloth lined with silver-grey watered silk.

#### FACULTY OF ARTS.

*B.A.*.—Black silk or stuff edged with electric blue watered silk.

*M.A.*.—Black silk lined with electric-blue watered silk.

*D.Phil. and D.Litt.*.—Scarlet cloth lined with electric-blue watered silk.

*B.Mus.*.—Black silk or stuff edged with tangerine watered silk.

## FACULTY OF MEDICINE.

*M.B.* and *Ch.B.*—Black silk or stuff edged with cardinal watered silk.

*Ch.M.*—Black silk lined with cardinal watered silk.

*M.D.*—Scarlet cloth lined with cardinal watered silk.

## DEPARTMENT OF DENTISTRY.

*B.D.S.*—Black silk or stuff edged with dark red (Grenat) watered silk.

*M.D.S.*—Black silk lined with dark red (Grenat) watered silk.

## FACULTY OF COMMERCE.

*B.Com.*—Black silk or stuff edged with terra-cotta watered silk.

*M.Com.*—Black silk lined with terra-cotta watered silk.

## HONORARY DEGREE.

*LL.D.*—Scarlet cloth lined with bronze-green watered silk.

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## CAPS.

Undergraduates, Masters, and Doctors will wear the ordinary square College Cap, and Doctors in full dress will wear a cap of black velvet with a gold cord, lined with the colour characteristic of the Faculty.

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*Robe Makers to the University—*

MESSRS. EDE, SON, & RAVENSCROFT, 93 AND 94, CHANCERY LANE, LONDON.

# FACULTIES OF SCIENCE, ARTS, AND COMMERCE.

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Session 1914-1915.

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## UNIVERSITY BUILDINGS.

The Courses in Science (except those in Zoology and Botany) are held at the University, Edgbaston, and the Courses in Arts and Commerce and Biology at the University, Edmund Street.

Applications relating to the admission of students should be addressed to the Registrar, the University, Edmund Street.

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## UNIVERSITY TERMS.

The University Session, or academic year, is divided into three terms—Winter, Spring, and Summer. The WINTER TERM commences on Tuesday, October 6th, and ends on Saturday, December 19th, 1914; the SPRING TERM commences on Tuesday, January 12th, 1915, and ends on Saturday, March 27th; the SUMMER TERM commences on Tuesday, April 27th, and ends on Saturday, June 26th.

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## ADMISSION OF STUDENTS.

1.—No Student will be admitted to the University under the age of 16 years. Students are not recommended to enter the University until they have attained the age of 17 years.

2.—All the courses of study are open to men and women on the same terms. Separate cloak rooms and reading rooms are reserved for the accommodation of women students.

3.—Students intending to enter the University and also present Students are required to fill up and return to the Registrar, before the first day of the Session, a form of application for admission (copies of which may be obtained from the Registrar).

4.—All Undergraduates are required to sign the Matriculation Register at the Registrar's Office, Edmund Street buildings. It is important that this should be done immediately after entrance as Students in the University, as work towards a Degree counts only from the date at which candidates sign the Register.

5.—All Undergraduates at the time of Matriculation must provide themselves with a cap and gown prescribed to be worn by Undergraduates of the University. Gowns are required to be worn at Examinations, at Ceremonies, when calling upon Academic Officers of the University, and at the Lectures of such Professors as do not definitely excuse their students from wearing them.

6.—The classes and laboratories of the University are open to all who are sufficiently prepared to take advantage of the instruction offered. Every person seeking admission as a student to a recognised course of instruction in preparation for a diploma, certificate, or other professional qualification must produce such testimonial or reference and pass such examination as shall be deemed necessary by the Vice-Principal; but no examination is as a rule deemed necessary in the case of students attending classes for the purposes of general culture, and not in preparation for any University Examination.

*Students who wish to join the courses in Engineering, who have passed no examination qualifying them for Matriculation, are required to pass an entrance examination in Mathematics, and in either Experimental Mechanics or Chemistry of about the same standard as the Matriculation examination*

7.—Every student entering any Faculty is required to seek an interview with the Dean of his Faculty or the Vice-Principal before finally selecting his classes or paying his fees at the Secretary's office.

8.—Students on admission are required to sign a declaration that they will obey the Regulations of the University, submit to its discipline, and uphold its honour and credit to the best of their ability.

9.—The Vice-Principal will be present every day (except Saturday) during the week commencing September 28th, and also on Monday, October 5th, from 10 o'clock a.m. to 1 o'clock p.m. at the University, Edgbaston, and from 2.30 to 4 at the University, Edmund Street, to confer with intending students, and give them advice respecting their courses of study, and may be seen at other times by appointment. The Deans of the Faculties and the Professors will also be present on Monday, October 5th, for the same purpose.

10.—After having settled their course of study in consultation with the Vice-Principal, or the Deans of Faculties, students must apply for admission either in writing or personally to the Secretary of the University. The Secretary's offices, both at Edgbaston and at Edmund Street, are open from 9 to 1 and from 2 to 5, except on Saturdays, when they are open from 9 to 1 only.

11.—*Reports on the attendance, progress, and conduct of students will be sent to parents and guardians on application in writing to the Vice-Principal.*

12.—For particulars as to the Hall of Residence for Women, see page 4.

13.—Students intending to take lodgings in Birmingham or the vicinity are recommended to place themselves in communication with the Secretary, Mr. G. H. Morley.

14.—Every student residing in lodgings in Birmingham is required to leave his local address at the Secretary's office, and to notify the Secretary of any change in his address.

## FEES.

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All Fees are to be paid in advance (*i.e.*, at the beginning of the Session or Term on account of which they are due) at the Secretary's Office in the University. Cheques should be drawn in favour of Mr. Geo. H. Morley. *Students should not enter for classes until after mature consideration, as fees once paid cannot be returned.*

### I.—MEMBERSHIP FEE.

Students are required to pay a Membership Fee, which includes all charges for the use of the Library and University Club rooms.

The following statement shows the Membership Fees :—

Men .. .. .. ..	£1 11 6	per session.
Women .. .. .. ..	£1 6 0	per session.
Students in Training College		
(Men) .. .. .. ..	£1 1 0	per session.

### II.—FEES FOR CLASSES AND LABORATORIES.

Composition fees are charged in the Departments of Engineering, Metallurgy, Mining, Commerce, and the Honours Schools in the Faculty of Arts, as follows :—

(a) Courses for B.Sc. degree in Engineering :

Composition fees (including membership fee) :

First year, £34 10 6

Second year, £50 10 6

Third year, £50 10 6

Fourth year (Mechanical, Civil, and Electrical),  
£50 10 6

(b) Courses for B.Sc. degree in Metallurgy :

Composition fees (including membership fee) :

First year, £30 10 6

Second year, £35 10 6

Third year (Metallurgists), £35 10 6

Third year (Metallurgical Chemists), £35 10 6

## (c) Courses for B.Sc. degree in Mining :

Composition fees (including membership fee) :

First year (Coal and Metal Course),	£28	0	0
Second year , , , ,	£35	10	6
Third year , , , ,	£45	10	6
First year (Petroleum Course)	..	£30	10
Second year , , , ,	..	£35	10
Third year , , , ,	..	£42	10

## (d) Courses for B.Com. degree :

Composition fees (including membership fee) :

First year, £21 10 6

Second year, £24 13 6

Third year, £24 13 6

Graduates' Commerce Diploma, £21 0 0

## (e) Courses for degrees in the Honour Schools :

Composition fees (excluding membership fees) :

First year, £17 17 0

Second year, £17 17 0

Third year, £10 10 0

The fees for Courses in Pure Science and Arts vary according to the subjects selected, but the following are the approximate fees for each Session :—

## (a) Courses for B.Sc. degree in Pure Science :

First year, from 17 to 25 guineas.

Second year, from 15 to 25 guineas.

Third year, from 15 to 30 guineas.

## (b) Courses for B.A. degree :

First year, 20 guineas.

Second year, 17 guineas.

Third year, 17 guineas.

## (c) Course for M.A. degree :

10 guineas.

## III.—FEES FOR EXAMINATIONS.

## Faculty of Science.

(i) Intermediate Examination	..	..	£2	0	0
(ii) B.Sc. Examination	..	..	6	0	0
(iii) First Engineering Examination	..	..	2	0	0

(iv)	First Mining Examination ..	..	£2	0	0
(v)	First Metallurgy Examination ..	..	2	0	0
(vi)	Second Engineering Examination ..	..	2	0	0
(vii)	Second Mining Examination ..	..	2	0	0
(viii)	Second Metallurgy Examination ..	..	2	0	0
(ix)	Third Engineering Examination ..	..	2	0	0
(x)	Third Mining Examination ..	..	4	0	0
(xi)	Third Metallurgy Examination ..	..	4	0	0
(xii)	Fourth Engineering Examination ..	..	4	0	0
(xiii)	Master's Degree Examination ..	..	5	0	0
(xiv)	Doctor's Degree Examination ..	..	10	0	0
(xv)	Brewing Diploma Examination ..	..	3	0	0
(xvi)	Mining Diploma Examination ..	..	5	0	0

**Faculty of Arts.**

(i)	Intermediate Examination ..	..	2	0	0
(ii)	Second Arts Examination ..	..	2	0	0
(iii)	Final B.A. Examination ..	..	4	0	0
(iv)	M.A. Examination ..	..	5	0	0
(v)	D.Phil. or D.Litt. Examination ..	..	10	0	0
(vi)	First Music Examination ..	..	2	0	0
(vii)	Second Music Examination ..	..	2	0	0
(viii)	Final B.Mus. Examination ..	..	4	0	0
(ix)	Secondary Teachers' Diploma Examination ..	..	3	0	0

**Faculty of Commerce.**

(i)	First Commerce Examination ..	..	2	0	0
(ii)	Second Commerce Examination ..	..	2	0	0
(iii)	Final B.Com. Examination ..	..	4	0	0
(iv)	M.Com. Examination ..	..	5	0	0
(v)	Graduates' Commerce Diploma ..	..	2	0	0

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Social Study Diploma Examination ..	..	1	0	0
Social Study (Higher) Diploma Examination ..	..	2	0	0

*The fees for Examination cannot be returned*, but candidates are allowed to repeat any examination on payment of £1. The fee for re-examination in separate subjects is 10s. per subject.

## REGULATIONS TO BE OBSERVED BY ALL STUDENTS.

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1.—Students are not permitted to be in the University buildings before 8.45 a.m., nor after 7 p.m., unless attending classes or the meetings of some Society of the University.

2.—All students are required to conduct themselves in a quiet and orderly manner whilst in the University, not only during lecture hours, but on entering and leaving the building.

3.—Smoking is prohibited in the corridors and front hall of the University buildings, and is restricted to the students' common rooms.

4.—Card playing is prohibited in all parts of the buildings.

5.—Students committing any damage to the University buildings, or University property, will be required to pay for making good the same, and may be excluded from the University till payment is made.

6.—Students are required to attend punctually and regularly at the lectures and classes for which their names are entered.

7.—When a student has been absent it is desirable that he should report the cause of his absence to the Professor on his return to the class. In the event of illness or unavoidable absence, notice should be sent by the absentee to the Dean of his Faculty as soon as convenient.

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## LIBRARY REGULATIONS.

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1.—The Harding Library at Edgbaston and the Library at Edmund Street are open daily during the Session from 9 a.m. to 6 p.m., except on Saturdays, when they are closed at 1 p.m. They are closed at 5 p.m. during the vacations. They are also closed during the month of August for cleaning purposes.

2.—The Libraries being set apart expressly for study, *all conversation is strictly prohibited*. Students are required to sit at the tables, and are not permitted to stand about in any part of the Libraries.

3.—Students are permitted to take books from the shelves but they are to be *returned to the Librarian*, and are not to be replaced upon the shelves by the readers.

4.—The Libraries are to be used by *present students, for reference and study only*, and no books, pamphlets, or journals, etc., are to be taken from it, except by members of the Teaching Staff.

5.—Certain valuable books of reference (including Dictionaries and Encyclopaedias), as indicated by the Council, are not allowed to be taken from the Libraries. Current Journals, Transactions of Societies, etc., are not allowed to be taken from the Libraries until after the publication of a succeeding part.

6.—In the event of a book being damaged by scribbling, tearing, etc., the person damaging it will be required to supply another copy in its place to the satisfaction of the Council. Any defect in a printed book should be pointed out to the Librarian.

7.—Books borrowed from the Libraries must be returned to the Librarian before the expiration of 15 days, subject to a renewal for a further period of 15 days, unless required by another reader.

8.—All books, pamphlets, etc., in the hands of borrowers must be returned to the Librarian on or before the last day of the Session.

9.—The Librarian is authorised to exclude temporarily any person infringing the regulations of the Libraries.

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**LOCKERS FOR BOOKS, ETC.**

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Lockers are provided in the locker room (first floor), and in the cloak room of the Medical School, at the Edmund Street buildings, and in the cloak room at the Edgbaston buildings, to enable students to preserve their books and papers in safety. Each student will be supplied with a key, upon which a deposit of two shillings and sixpence will be charged. The key must be delivered up on or before the last day of the Term or Session for which payment has been made, or the deposit will be forfeited.

A master-key of all the lockers is kept in the Secretary's office

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## UNIVERSITY CLUB.

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All students are members of the Club both at Edmund Street and at Edgbaston, by virtue of their University membership fees.

The accommodation at Edmund Street consists of a reading and debating room, which can also be used for meetings and other social purposes; writing room, and dining room, where meals and refreshments at moderate prices are procurable throughout the day.

There is also a games room, and a billiard room fitted with two tables. A bath room, dressing rooms, and cycle accommodation are also provided.

Women students are provided with club rooms, including dining and tea rooms.

A common room and dining room have also been provided at the new buildings at Edgbaston, and a separate reading room.

All members of the University Court of Governors and Council, all Professors, Lecturers, and Demonstrators of the University, all past students of the University and Medical School, and all members of the Honorary and Resident Staffs of the Hospitals in connection with the University, are eligible as members. Annual subscription, £1 1s.

Full particulars as to membership, and copies of the rules, can be obtained from the Hon. Secretary.

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## Matriculation Regulations for 1915.

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### MATRICULATION : ITS PRIVILEGES.

Matriculation is the formal admission of a student to membership of the University.

Although the classes in the University are open to all students who are sufficiently prepared to take advantage of the instruction offered, students are strongly recommended to pass some qualifying examination and be matriculated before entering the University. It is only matriculated students who can become undergraduates and enjoy the privileges of Membership of the University and the Guild of Undergraduates and are eligible to become candidates for degrees in the University. Undergraduates and Graduate Students are required to wear academic dress when in attendance upon University lectures and examinations, when calling upon the officers of the University, and upon all official occasions. Students who are not Undergraduates or Graduates are not entitled to wear academic dress.

Students who have been matriculated are entitled to the privileges of membership of the University and of the Guild of Undergraduates only so long as they are in actual attendance on a course of study approved by a Faculty of the University.

No candidate can be matriculated in the University under the age of sixteen years.

## QUALIFICATIONS FOR MATRICULATION

- (a) **By means of the Matriculation Examination or its equivalent.**

Students may be matriculated in any Faculty provided that they have passed the Matriculation Examination or have obtained the Senior School Certificate of the University in the necessary subjects, or can produce evidence that they have passed one of the Examinations which the University accepts as exempting from the Matriculation Examination. A schedule of such examinations will be found on page 167. Persons desiring to be matriculated by virtue of such an examination are required to pay a fee of £1.

- (b) **By means of a complete Higher Examination.**

Candidates may also qualify for matriculation by passing in all the required subjects at one Examination either in June or September, 1915, one of the following higher examinations, viz. :—

- (1) Intermediate Science or Arts Examinations ;
- (2) First Examination in Engineering, Metallurgy, or Mining ;

provided that at the July or September Matriculation Examination (of 1915) they also pass at one examination in all such subjects required for matriculation as are not included in the higher examination they select.

Candidates who fail at the Intermediate Arts Examination in June in the subject of either Mathematics or Logic only may be allowed to repeat that one subject at the September Examination. Candidates who do themselves credit at the higher examination, although they do not actually pass it, may be allowed to be matriculated without further examination, except in such subjects as are not included in the higher examination.

## ENTRY OF MATRICULATED CANDIDATES FOR HIGHER EXAMINATIONS AT ENTRANCE.

Candidates who have already passed an examination qualifying for matriculation may also pass one of the higher examinations mentioned in paragraph (b) before entrance, and so can enter the University as students of advanced standing.

## PRIVILEGES OF THOSE WHO TAKE A HIGHER EXAMINATION AT ENTRANCE.

### (a) Higher Mathematics at Matriculation.

Candidates who pass the Matriculation Examination in Higher Mathematics at an adequate standard will not be required to attend or be examined in Mathematics, Course I, when they enter the University.

### (b) Complete Examinations.

Candidates who have passed one of the higher examinations in all subjects and completed their Matriculation may then enter upon the second year's course of study in the Faculties of Science and Arts, and take the examination for the Bachelor's Degree at the end of their second year; but they will still be required to complete three years of study before being admitted to any Degree. Those candidates who pass the Final Examination for the Bachelor's Degree at the end of their second year may take the course for the Master's Degree in their third year, and be eligible for that Degree at the end of three years from entrance.

Candidates who pass the Intermediate Science Examination or the First Engineering Examination before entrance become eligible for the B.Sc. Degree in Engineering after three years instead of four.

Candidates who pass the Intermediate Arts Examination before entrance may proceed at once to the courses for the Honour Schools of Modern Languages, Classics, English Literature, or History, and at the end of their third year of study will be eligible for the degree of Master of Arts.

#### HIGHER EXAMINATION IN MEDICINE AT ENTRANCE.

Candidates for degrees in the Faculty of Medicine may enter for the first professional examination (Chemistry Physics and Elementary Biology) before commencing their courses in the University, provided that they have already passed the Matriculation Examination or some preliminary examination accepted by the University in lieu of its Matriculation Examination. Such candidates will become eligible for the Final Examination for the degrees of M.B., Ch.B., after four years of study in the University, provided that they have then been registered medical students for a period of five years.

#### ALTERNATIVE HIGHER EXAMINATIONS OF OTHER UNIVERSITIES.

The complete Intermediate Science Examination of any approved University will be accepted in lieu of the Intermediate Science or First Engineering Examination of the Birmingham University, and the complete Intermediate Arts and Preliminary Scientific Examinations of other approved Universities will be accepted as equivalent to the corresponding examinations of the Birmingham University, as qualifying students to enter on second year courses of study and entitling them to the foregoing privileges.

## MATRICULATION EXAMINATION.

There will be Matriculation and Senior School Certificate Examinations, commencing on Wednesday, July 7th, and Wednesday, September 8th, 1915. Candidates for these examinations must apply to the Registrar for a form of entry, which must be returned on or before June 10th or August 5th respectively, accompanied by a certificate of good character from the last school attended or from some responsible person, a birth certificate and the proper fee.

The Fee for the Matriculation Examination is £2; and, in cases of failure or withdrawal from the examination, for each subsequent Examination £1.

The examination will be conducted partly by means of printed papers, and partly by means of a *viva voce* examination.

Candidates will not be admitted to the Matriculation Examination under the age of sixteen on the first day of the Examination. Students over the age of fifteen, who are being educated at one of the Secondary Schools in the list issued by the Board of Education, whether under inspection by the University or not, will be admitted with the consent of their Head Master or Head Mistress, to the Senior School Certificate Examination on payment of the usual fee of £2, but they will not be eligible to receive the Certificate until they have attained the age of sixteen years.

The examination will be held at the University Buildings, Edgbaston, Birmingham.

Copies of the examination papers set at previous examinations may be obtained from Messrs. Cornish Bros., New Street, Birmingham, price sixpence, post free eight-pence.

Every candidate must pass in five subjects at one examination, viz. :—

- (1) English History and Literature.
- (2) Mathematics.
- (3), (4), and (5) Three subjects (of which one must be a language) chosen from the following list :—
  - (a) Latin.
  - (b) Greek.
  - (c) French.
  - (d) German.
  - (e) Italian.
  - (f) Spanish.
  - (g) Higher Mathematics.
  - (h) Experimental Mechanics.
  - (i) Chemistry.
  - (j) Geography.
  - (k) Botany.
  - (l) Animal Biology.
  - (m) Geometrical Drawing.

Candidates for :—

(a) Degrees in Science, Commerce, and Music are allowed free choice of subjects under the headings (3), (4), and (5), except that one of the subjects must be a language.

(b) Degrees in Engineering are required to pass in Experimental Mechanics as one of their subjects, and are further recommended to take Higher Mathematics.

(c) Degrees in Arts are required to pass in Latin and a modern language as two of their subjects.

(d) Degrees in Medicine are required to pass in Latin, another language, and either Experimental Mechanics or Chemistry as three of their subjects.

Candidates for Degrees in Pure and Applied Science are recommended to take both French and German, if possible.

In certain cases foreign students are allowed to offer their native language instead of the prescribed English. Such candidates should give notice to the Registrar before April 21st for the July examination, and before June 17th for the September examination. An extra fee will be charged for this examination.

Candidates may offer six subjects for examination if they choose, but they will receive credit for only five. Candidates who have passed the examination in five subjects, but have not satisfied the special requirements for degrees in Engineering, Arts, or Medicine, may qualify for entry to the courses for these degrees by passing separately at a subsequent examination in the subject or subjects omitted. The fee for examination in one subject is 10s.

The particulars of the foregoing subjects of examination in July and September, 1915, are set out in the following schedule. The books to be prepared in Latin, Greek, French, German, Italian, and Spanish are left to the choice of candidates, subject to the approval of the University, but they should be of about the same length and standard of difficulty as the books suggested under the various headings below.

### I. English History and Literature.

- A. History of the English People  
either (1) 829 to 1603  
or (2) 1603 to 1900.

Students should give attention to the social and literary, as well as to the political and geographical, aspects of History. They should also pay some attention to the relation of European and Colonial History to English.

Books recommended :

- J. R. Green : *Short History of the English People*.  
S. R. Gardiner : *Student's History of England*.

B English Literature :

Candidates will be required to write three or four short compositions on subjects drawn from *one* of the following groups, to be selected by the candidate.

Groups for 1915 :

- (a) Marlow : Edward II.  
 Spenser : Faerie Queene, Book I.  
 Milton : Samson Agonistes.  
 Shakespeare : As You Like It, Henry V.  
 Palgrave : Golden Treasury, Books I and II.  
 Bacon : Advancement of Learning, Book I.  
 Scott : Kenilworth.
- (b) Pope : The Rape of the Lock.  
 Addison : The Coverley Essays from the *Spectator*.  
 Gray : Poems.  
 Goldsmith : Poems, The Vicar of Wakefield.  
 Johnson : Lives of Pope and Gray.  
 Cowper : The Task, Letters (World's Classics).  
 Macaulay : Life of Addison.  
 Thackeray : Esmond, Lectures on the English Humorists.
- (c) Burke : Reflections on the Revolution in France.  
 Wordsworth : Selections made by Matthew Arnold.  
 Scott : Lay of the Last Minstrel, Lady of the Lake, The Fortunes of Nigel, Old Mortality.  
 Jane Austen : Mansfield Park.  
 Keats : Poems published in 1820.  
 Lamb : Essays of Elia, 1-20.  
 The Golden Treasury of Songs and Lyrics, Book IV.

## Groups for 1916 :

- (a) Palgrave : Golden Treasury, Books I and II.  
 Spenser : Faerie Queene, Book II.  
 Shakespeare : Julius Cæsar, The Tempest.  
 North : Plutarch's Lives of Julius Cæsar and  
     Marcus Brutus.  
 Milton : Paradise Lost, Book I ; Areopagitica.
- (b) Swift : Gulliver's Travels to Lilliput and  
     Brobdingnag.  
 Bunyan : Pilgrim's Progress.  
 Johnson : Rasselas, Lives of Addison, Pope,  
     and Swift.  
 Pope : Rape of the Lock.  
 Addison : Essays in Golden Treasury Series  
     (pp. 1-160).  
 Goldsmith : She Stoops to Conquer, The  
     Good-natured Man, The Citizen of the  
     World.
- (c) Burke : On Conciliation with America.  
 Wordsworth : Lyrical Ballads, 1798 ; Sonnets  
     dedicated to Independence and  
     Liberty ; Miscellaneous Sonnets.  
 Scott : Marmion, Bride of Lammermoor,  
     Heart of Midlothian, Quentin Durward.  
 Byron : Childe Harold, Cantos 3 and 4.  
 Jane Austen : Pride and Prejudice.  
 Hazlitt : Winterslow.  
 Golden Treasury of Songs and Lyrics,  
     Book IV.

Candidates will be expected to show an intelligent understanding of the subject matter of the books they offer, but not a minute knowledge of allusions, parallel passages and criticisms which bear on the text of the books,

**2. Mathematics.**

1. *Arithmetic*.—A knowledge of recurring decimals and of the process of extracting cube root will not be required.

The use of algebraical symbols and processes will be permitted.

2. *Elementary Algebra*, viz., addition, subtraction, multiplication and division ; simple equations : fractions ; highest common factor, lowest common multiple ; quadratic equations ; solutions of two simultaneous equations, one at least being linear ; simple graphs ; problems requiring the classes of equations specified ; simple questions on fractional indices ; the nature and simple properties of logarithms to the base 10, with easy applications of four-figure tables ; ratio and proportion ; arithmetic progression, finite geometric progressions.

3. *Geometry*.—The paper in Geometry will contain questions on Practical and on Theoretical Geometry. Every Candidate will be expected to satisfy the Examiners in both branches of the subject.

The questions on Practical Geometry will be set on the constructions contained in the annexed Schedule A, together with easy extensions of them. In cases where the validity of a construction is not obvious, the reasoning by which it is justified may be required. Every candidate must provide himself with a ruler graduated in inches and tenths of an inch, and in centimetres and millimetres, a set square, a protractor, compasses, and a hard pencil. All figures should be drawn accurately. Questions may be set in which the use of the set square or of the protractor is forbidden.

The questions on Theoretical Geometry will consist of theorems contained in the annexed Schedule B, together with questions upon these theorems, easy deductions from them, and arithmetical illustrations. Any proof of a Proposition will be accepted which appears to the Examiners to form part of a systematic treatment of the subject; the order in which the theorems are stated in Schedule B is not imposed as the sequence of their treatment.

In the proof of theorems and deductions from them, the use of hypothetical constructions will be permitted. Proofs which are only applicable to commensurable magnitudes will be accepted.

#### SCHEDULE A.

Bisection of angles and of straight lines. Construction of perpendiculars to straight lines. Construction of an angle equal to a given angle. Construction of parallels to a given straight line. Simple cases of the construction from sufficient data of triangles and quadrilaterals. Division of straight lines into a given number of equal parts or into parts in any given proportions. Construction of a triangle equal in area to a given polygon. Construction of tangents to a circle and of common tangents to two circles. Simple cases of the construction of circles from sufficient data. Construction of a fourth proportional to three given straight lines and a mean proportional to two given straight lines. Construction of regular figures of 3, 4, 6, or 8 sides in or about a given circle. Construction of a square equal in area to a given polygon.

## SCHEDULE B.

*Angles at a point.*—If a straight line stands on another straight line, the sum of the two angles so formed is equal to two right angles ; and the converse. If two straight lines intersect, the vertically opposite angles are equal.

*Parallel Straight Lines.*—When a straight line cuts two other straight lines, if (i) a pair of alternate angles are equal, or (ii) a pair of corresponding angles are equal, or (iii) a pair of interior angles on the same side of the cutting line are together equal to two right angles, then the two straight lines are parallel ; and the converse. Straight lines which are parallel to the same straight line are parallel to one another.

*Triangles and Rectilinear Figures.*—The sum of the angles of a triangle is equal to two right angles. If the sides of a convex polygon are produced in order, the sum of the angles so formed is equal to four right angles. If two triangles have two sides of the one equal to two sides of the other, respectively, and also the angles contained by those sides equal, the triangles are congruent. If two triangles have two angles of the one equal to two angles of the other, respectively, and also one side of the one equal to the corresponding side of the other, the triangles are congruent. If two sides of a triangle are equal, the angles opposite to these sides are equal ; and the converse. If two triangles have the three sides of the one equal to the three sides of the other, respectively, the triangles are congruent. If two right-angled triangles have their hypotenuses equal, and one side of the one equal to one side of the other, the triangles are congruent. If two sides of a triangle are unequal, the greater side has the greater angle opposite to it ; and

the converse. Of all the straight lines that can be drawn to a given straight line from a given point outside it, the perpendicular is the shortest. The opposite sides and angles of a parallelogram are equal, each diagonal bisects the parallelogram, and the diagonals bisect one another. If there are three or more parallel straight lines, and the intercepts made by them on any straight line that cuts them are equal, then the corresponding intercepts on any other straight line that cuts them are also equal.

*Areas.*—Parallelograms on the same or equal bases and of the same altitude are equal in area. Triangles on the same or equal bases and of the same altitude are equal in area. Equal triangles on the same or equal bases are of the same altitude. Illustrations and explanations of the geometrical theorems corresponding to the following algebraical identities:—

$$\begin{aligned}k(a+b+c+\dots) &= ka+kb+kc+\dots, \\(a+b)^2 &= a^2 + 2ab + b^2, \\(a-b)^2 &= a^2 - 2ab + b^2, \\a^2 - b^2 &= (a+b)(a-b).\end{aligned}$$

The square on a side of a triangle is greater than, equal to, or less than the sum of the squares on the other two sides, according as the angle contained by those sides is obtuse, right or acute. The difference in the cases of inequality is twice the rectangle contained by one of the two sides and the projection on it of the other.

*Loci.*—The locus of a point which is equidistant from two fixed points is the perpendicular bisector of the straight line joining the two fixed points. The locus of a point which is equidistant from two intersecting straight lines consists of the pair of straight lines which bisect the angle between the two given lines.

*The Circle.*—A straight line, drawn from the centre of a circle to bisect a chord which is not a diameter, is at right angles to the chord ; conversely, the perpendicular to a chord from the centre bisects the chord. There is one circle, and one only, which passes through three given points not in a straight line. In equal circles (or in the same circle) (i) if two arcs subtend equal angles at the centres, they are equal ; (ii) conversely, if two arcs are equal, they subtend equal angles at the centres. In equal circles (or in the same circle) (i) if two chords are equal, they cut off equal arcs ; (ii) conversely, if two arcs are equal, the chords of the arcs are equal. Equal chords of a circle are equidistant from the centre ; and the converse. The tangent at any point of a circle and the radius through the point are perpendicular to one another. If two circles touch, the point of contact lies on the straight line through the centres. The angle which an arc of a circle subtends at the centre is double that which it subtends at any point on the remaining part of the circumference. Angles in the same segment of a circle are equal ; and, if the line joining two points subtends equal angles at two other points on the same side of it, the four points lie on a circle. The angle in a semicircle is a right angle ; the angle in a segment greater than a semicircle is less than a right angle ; and the angle in a segment less than a semicircle is greater than a right angle. The opposite angles of any quadrilateral inscribed in a circle are supplementary ; and the converse. If a straight line touch a circle, and from the point of contact a chord be drawn, the angles which this chord makes with the tangent are equal to the angles in the alternate segments. If two chords of a circle intersect either inside or outside the circle, the rectangle contained by the parts of

the one is equal to the rectangle contained by the parts of the other.

*Proportion and Similar Triangles.*—If a straight line is drawn parallel to one side of a triangle, the other two sides are divided proportionally ; and the converse. If two triangles are equiangular their corresponding sides are proportional ; and the converse. If two triangles have one angle of the one equal to one angle of the other and the sides about these equal angles proportional the triangles are similar. The internal bisector of an angle of a triangle divides the opposite side internally in the ratio of the sides containing the angle, and likewise the external bisector externally. The ratio of the areas of similar triangles is equal to the ratio of the squares on corresponding sides.

3, 4, and 5. (a) and (b) Latin, Greek.

- (i) Translation of easy passages at sight, with questions on Grammar (Accidence and Syntax).

*Candidates are required to satisfy the Examiners in Unseen Translation.*

- (ii) Easy Composition.
- (iii) Translation of passages from a prepared book.

In all language papers the grammatical forms recommended in the Report of the Joint Committee on Grammatical Terminology (John Murray, price 6d.) will be made use of, but for the present the older grammatical forms will be quoted in brackets where there is any danger of mistake.

For prepared work any book of about the same length and standard of difficulty as Cicero, *Pro Lege Manilia*, (about 70 sections), or one of the longer books of Cæsar (e.g., Bell. Gall. I, V, VI, VII), or two of the shorter books of the Gallic War (II, III, IV), or a book of Vergil (excepting Aeneid Books IV and VI), or Ovid (about 700-800 lines) or Livy, and (for Greek) a book of Xenophon or a Greek play will be accepted.

Candidates proposing to offer other books than these must submit them for approval to the University.

(c) French, (d) German, (e) Italian, (f) Spanish.

- (i) Translation of easy passages at sight, with questions on Grammar (Accidence and elementary Syntax).
- (ii) Easy composition, including both translation into the foreign language, and free composition.
- (iii) *Viva voce*. Dictation, reading aloud and translation of passages from the prepared book, and easy conversation based on them.

In all language papers the grammatical forms recommended in the Report of the Joint Committee on Grammatical Terminology (John Murray, price 6d.) will be made use of, but for the present the older grammatical forms will be quoted in brackets where there is any danger of mistake.

For prepared work any of the following books (or other books of similar length and standard of difficulty approved beforehand by the University) may be offered in July and September, 1915.

French : Alph. Daudet : *Jack* ; or

*Le Petit Chose* (either Part I or Part II).

Mérimée : *Colomba*.

Lamartine : *Graziella*.

German : *Stille Wasser* (Heath),

Italian : Carlo Collodi : *Le avventure de Pinocchio*.

Spanish : Cervantes : *The Adventure of the Wooden Horse*, and *Sancho Panza, Governor of Barataria* (Clarendon Press).

(g) Higher Mathematics.

*Algebra*.—Elementary properties of surds and imaginaries ; simultaneous quadratics and equations like quadratics ; arithmetical and geometrical progressions and other simple series ; theory of indices ; theory and practical applications of logarithms ; permutations and combinations ; the binomial theorem for a positive integral exponent.

*Trigonometry*.—Trigonometrical ratios of acute angles; solution of right-angled triangles, and simple problems of heights and distances; circular measure of angles; length of arcs of circles; angles of any magnitude and sign; trigonometrical ratios of obtuse angles; sine, cosine, and tangent of the sum and difference of angles; formulae for the ratios of the double angle, triple angle, and the half angle; transformation of sums and differences of sines and cosines into products, and vice-versâ; properties of triangles; solution of triangles; problems on heights and distances; the chief circles related to a triangle; regular polygons; areas of circles, sectors, and segments.

*Elementary Analytical Geometry*.—Rectangular co-ordinates; distance between two points; areas of triangles and polygons; the equation of the line joining two given points; intersection of lines and other loci; the equation to the circle.

*Geometry*.—The substance of Euclid, Book XI, 1—21, together with properties, areas of surface, and volumes of polyhedra, cylinders, cones, and spheres.

#### (h) Experimental Mechanics.

*Statics*. Force measured in pounds weight or grammes weight. Equilibrium under two equal and opposite forces. Equality of the action and reaction between two bodies. Transmissibility of force by strings, ropes, and rigid connexions. Experimental investigation of the conditions for the equilibrium of a body when acted on by three parallel forces. Resultant. Moment of a force about a point. Balancing of moments when a body is in equilibrium. Centre of parallel forces. Centre of gravity and the experimental investigation of its positions. Stability and instability of a body, supported from a point or on a base. Work and rate of working. Foot pound and horse power. The lever, the balance, the single string system of pulleys, the wheel and axle, the

differential pulley, as illustrations of parallel forces, and of the principle of work. Experimental investigation of the conditions for the equilibrium of a body when acted on by three forces not parallel. The triangle of forces. The parallelogram of forces. Graphic resolution and composition of forces. Simple cases of resultant of two forces acting at a point. Balancing of moments when a body is in equilibrium. Inclined plane. Windmill. Sailing. Screw, toothed and worm wheels, as treated by the principle of work. Efficiency of machines always reduced by friction.

*Hydrostatics.* Distinction between liquids and gases. Pressure at a point in a fluid. Equality of pressure at points on the same level. Change of pressure with depth. Surface of a liquid level. Transmission of pressure in liquid. Hydraulic press. Pressure against horizontal surfaces and vertical containing walls. Archimedes' principle. Density and specific gravity. Methods of finding specific gravities. Relation between volume and pressure in a gas. Air Pumps. Atmospheric pressure. Barometers. Common pumps. Force pump.

*Dynamics.* Units of length and time. Velocity. Uniform acceleration. Use of formulæ connecting velocity, time and distance travelled, with acceleration. Mass. Equal masses are those having equal acceleration under equal forces. Simple experiments to show that mass is proportional to weight at the same place. Constancy of mass under change of physical and chemical condition. Momentum and rate of change of momentum. Force measured by rate of change of momentum. Dyne and poundal. Momentum measure of force proportional to its weight measure. Relation between weight measure and momentum measure  $g$ . Atwood's machine.

Momenta generated in two bodies by their mutual action, equal and opposite. Constancy of momentum. Kinetic energy and work.

**(i) Chemistry.**

Gaseous, liquid and solid states of matter.

Nature of chemical change. Elements, compounds, and mixtures.

Types of chemical action.

Solution, crystallisation, distillation, diffusion.

Chemical and physical properties of air and water.

Nature of acids, bases, and salts.

Nature, occurrence, chief modes of preparation, and principal properties of the following non-metallic elements and their more important compounds : Hydrogen, Oxygen, Carbon, Silicon, Sulphur, Nitrogen, Phosphorus, Fluorine, Chlorine, Bromine, and Iodine.

Combination by weight and volume. Symbols, equations, and calculations relating to weight and volume. Nomenclature.

Chemical and Physical characteristics of metals as illustrated by Sodium, Calcium, Iron, Zinc, Lead, Mercury, Copper, and Silver.

Candidates are required to show knowledge of a concrete and experimental character throughout.

**(j) Geography.**

*Part I.—Physical.*

The Earth and the Solar System ; the form and size of the globe ; its movements ; day and night ; the seasons.

The Earth's surface ; distribution of land and water ; the relief of the land areas and floor of oceans

The Atmosphere ; its composition and temperature, moisture, pressure, and movements (winds, storms, rain, snow, fog, etc., and their distribution).

The Sea ; the sea waters, waves, and currents ; the chief deposits on the ocean floor.

The Land ; the solid earth crust and its rocks ; its slow movements ; earthquakes and volcanoes, their phenomena and distribution.

The Work of Water, etc. ; the sea and its waves ; rain and rivers ; river basins ; glaciers and ice-sheets ; lakes, springs, waterfalls, deltas, &c.

*Part II.—Political and Practical.*

*A. General.*

The Continents ; generalities of their natural features, climate and productions ; their chief countries, peoples, modes of government, capitals, and other main centres of population.

*B. Special.*

The British Isles ; their natural features, climate, and productions ; their main political divisions, chief towns, population, industries, trade and commerce, colonies and dependencies.

*C. Practical.*

The reading of ordinary topographical maps on the scales of 1 inch and  $\frac{1}{2}$  inch to the mile ; the measurement of distances and directions on maps generally ; interpretation of the modes of shewing natural features (relief and drainage), and artificial features (roads, railways, etc.).

NOTE.

Candidates will be required to satisfy the Examiners both in Part I and in Part II.

## (k) Botany.

A. *Plant Form as a key to Relationships.*

The Candidate is expected to have *practical* familiarity with

- (i) The chief characters of root, stem, bud and leaf of the principal British plants of quite general distribution and of garden plants of general cultivation, and with the nature and structure, as determinable by eye or lens, of common bulbs, fruits, seeds, or other vegetable products, in ordinary use, and universally met with in shop or market.
- (ii) The most important floral and fruiting characters of the following British families of flowering plants, studied in reference to the progressive evolution of a dicotyledonous flower, the guiding principles of which are economy in the production of the stamens and carpels, and adaptation to the reception of insect visitors :—Cupuliferae, Ranunculaceae, Caryophyllaceae, Cruciferae, Rosaceae, Leguminosae, Violaceae, Umbelliferae, Primulaceae, Labiate, Scrophularineae, Compositae; also the Liliaceae, as a representative family of the Monocotyledons.
- (iii) To be able to describe concisely and in systematic fashion, flowering or fruiting specimens taken from (i) or (ii) as above, the various parts being known by their technical names, but otherwise more importance being attached to accuracy of observation than to the memory of technical terms.

B *How Plants live, grow, and reproduce.*

- (iv) The mode of development of the plant, the elementary facts of nutrition and respiration, the nature and function of root, stem, and leaf, and their relations with external conditions and forces, to be determined *experimentally* by the aid

of seedlings grown in the class-room from the following typical seeds or one-seeded fruits, viz., castor-oil *or* buck wheat, pea *or* bean, sunflower, mustard *or* cress, and maize, wheat *or* barley, and the bulb of hyacinth *or* onion.

- (v) The functions of the floral parts, their relations with pollination, the production and protection of seeds, and the provisions for seed-dispersal, especially as illustrated in the Natural Orders named above.

#### (l) Animal Biology.

Candidates are expected to shew a practical acquaintance as well as literary knowledge of the following branches of the subject :—

##### A. *Movements and habits of animals.*

The movements of the dog, rabbit, fish, and frog. The habits of the frog, butterfly, bee, crayfish, and earthworm. The general facts of bird migration. The resting habits of common birds.

##### B. *The organisation of animals.*

The chief systems of the Frog treated in an elementary manner. The external features of the following : Hydra, Earthworm, Crayfish, Pond Mussel *or* Snail, Bee *or* Butterfly, a fish, bird, and a mammal (in the last case to include the dentition).

##### C. *The life histories* of Obelia, cabbage butterfly, gnat, and frog.

##### D. *The classification* of the animals mentioned in this syllabus.

#### (m) Geometrical Drawing.

*Plane Geometry.* Construction of scales. Areas of plane figures. Problems on construction and simple properties of polygons, and the following curves : circle, ellipse, parabola, hyperbola,

cycloid, and involute of circle. Determination of mass centre of a polygon. Simple problems on loci, including point-paths in elementary link-work. The representation and solution of algebraic equations by curves.

*Solid Geometry.* Elementary projections of points, lines, planes, and solids, including the cylinder, cone and sphere. Simple sections. Projection of additional plans and elevations. Developments of the surfaces of simple solids. Elementary problems in inter-penetration of prisms, cylinders and cones, and developments of penetrated surfaces. Projection of helical surfaces and screw threads.

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A list of candidates who have passed the Examination will be published, arranged in two divisions, in each of which the names will be placed in alphabetical order.

A pass-certificate signed by the Registrar will be sent to each successful candidate after the list is published.

Unsuccessful candidates will be informed of the subjects in which they have failed on application to the Registrar after the publication of the list.

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## SCHEME OF EXAMINATIONS

accepted in lieu of Matriculation Examination.

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1. The Previous Examination of the University of Cambridge, if it includes the "Additional Subjects."
2. Responsions of the University of Oxford, except in Mathematics.
3. The Preliminary or Matriculation Examination of a recognised University.

4. The Higher Certificate and the School Certificate of the Oxford and Cambridge Examinations Board.
5. The Oxford or Cambridge Senior Local Examination.
6. The Senior Certificate of the Central Welsh Board.

Provided that Candidates who offer Examinations 3, 4, 5, and 6 have passed at one examination in all the subjects required by the regulations for matriculation.

In the Faculties of Science, Arts, and Commerce the Oxford and Cambridge Higher Local Examinations in any subject will exempt candidates from further examination in that subject in the Matriculation Examination. A written statement from the Secretary of the Oxford Delegacy or the Cambridge Syndicate certifying that the candidate has passed the examination in that subject must be presented.

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## RECOGNITION OF THE MATRICULATION EXAMINATION BY OTHER INSTITUTIONS.

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The Matriculation Examination of the University of Birmingham is recognised by the following Institutions in lieu of the preliminary examination :—

University of Oxford, in lieu of Responsions, under certain conditions.

University of Cambridge, in lieu of the Previous Examination, under certain conditions.

Incorporated Law Society (provided that Latin is one of the subjects of examination).

Institute of Chartered Accountants (provided that the Matriculation Certificate includes all the subjects required for the Institute's Preliminary Examination).

The Society of Incorporated Accountants and Auditors.

Board of Education, for admission to Training Colleges  
(Certificate to include required subjects).

General Medical Council, for Registration of Medical  
and Dental Students.

Institution of Civil Engineers (Certificate to include  
required subjects).

Institute of Chemistry.

Pharmaceutical Society of Great Britain (Certificate  
to include required subjects).

Royal Society of Veterinary Surgeons (Certificate to  
include required subjects).

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## MATRICULATION EXAMINATION TIME TABLE.

The Examinations commence on July 7th, 1915, and September 8th, 1915.

*1st Week.*

Wednesday	10 to 1	Arithmetic and Algebra.
	2 to 5	Geometry.
Thursday	10 to 1	English Literature.
	2 to 5	English History.
Friday	10 to 1	French (1st paper).
	2 to 5	French (2nd paper).
Saturday	10 to 1	Experimental Mechanics.
		Botany.

*2nd Week.*

Monday	10 to 1	Latin (1st paper).
	2 to 5	Latin (2nd paper)
Tuesday	10 to 1	Chemistry.
	2 to 5	Geography.
Wednesday	10 to 1	German (1st paper).
	2 to 5	German (2nd paper).
Thursday	10 to 1	Higher Mathematics (1st paper).
		Greek (1st paper).
	2 to 5	Higher Mathematics (2nd paper)
		Greek (2nd paper).
Friday	10 to 1	Geometrical Drawing.
		Animal Biology.

The above Time-table is provisional only, and due notice will be given of any alterations which may be rendered necessary by candidates entering for two subjects to which the same hour is assigned.

## SCHOOL CERTIFICATES.

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The conditions under which the University conducts the Inspection of Secondary Schools will be found on page 210. In Schools which come under this scheme the University is prepared to award Senior and Junior School Certificates under the following conditions :

i. Senior School Certificates will be awarded to candidates who—

(a) have pursued an approved course of study for a continuous period of three years in one school, or of four years in two schools which are under the University's inspection ;

(b) have attained a standard of education fully equal to that of the University Matriculation Examination in an adequate range of subjects.

The Certificate shall enumerate the subjects in which the necessary standard has been reached.

The Certificate will in no case be awarded to candidates until they have attained the age of 16 years.

2. Holders of the Senior School Certificates will be exempted from the Matriculation Examination of the University in the cases where the subjects enumerated on the Certificate include all the subjects demanded by the Faculty which they propose to enter.

3. Junior School Certificates will be awarded to candidates who—

(a) have pursued an approved course of study for a continuous period of three years in a school or schools which are under the University's inspection ;

(b) have attained such a standard as may reasonably be expected of a boy or girl of 15.

The Certificate shall enumerate the subjects in which the necessary standard has been reached.

4. The Certificates shall be awarded by the University upon the results of school examinations held by the inspectors of the University; and the school record kept for each pupil throughout his period of attendance shall be available for inspection and consideration by the inspectors and examiners.

The Senior School Certificate is recognised by the following Institutions as exempting from their preliminary examinations :—

Royal Institute of British Architects.

General Medical Council, for Registration of Medical and Dental Students (if the required subjects are taken).

Institute of Chartered Accountants (provided that the Certificate includes all the subjects required for the Institute's Preliminary Examination).

Institute of Chemistry.

Incorporated Law Society (provided that Latin is one of the subjects of examination).

Institution of Civil Engineers (Certificate to include the required subjects).

Board of Education, for admission to Training Colleges (Certificate to include the required subjects).

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## INTERMEDIATE EXAMINATIONS FOR EXTERNAL CANDIDATES.

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The Intermediate Science, First Engineering, First Metallurgy, First Mining, Intermediate Arts and First Medical Examinations are held twice each year, in June and September. The dates on which the examinations commence may be obtained on application to the Registrar. The fee for each of these Examinations is £2

Candidates for any of these examinations must apply beforehand to the Registrar for a form of entry, which must be returned, accompanied by a certificate of good conduct from the last school attended or from some responsible person, a birth certificate, and by the proper fee, not later than April 21st for the June Examination, or August 6th for the September Examination.

### I.—INTERMEDIATE SCIENCE EXAMINATION.

Candidates are required to pass in *three* of the following subjects at one Examination :—

- (i) Pure Mathematics.
- (ii) Physics.
- (iii) Chemistry (Inorganic and Organic).
- (iv) Elementary Biology (Botany and Zoology).

### II.—FIRST ENGINEERING EXAMINATION.

Candidates are required to pass in the following four subjects at one Examination :—

- (i) Mechanical Drawing.
- (ii) Pure Mathematics.
- (iii) Physics.
- (iv) Inorganic Chemistry.

Students entering the University by means of this Examination will be required to take Engineering Course I with their second year subjects.

### III.—FIRST METALLURGY EXAMINATION.

Candidates are required to pass in the following four subjects at one Examination :—

- (i) Pure Mathematics.
- (ii) Physics.
- (iii) Inorganic Chemistry.
- (iv) Metallurgy.

### IV.—FIRST MINING EXAMINATION.

Candidates are required to pass in the following four subjects at one Examination :—

- (i) Pure Mathematics.
- (ii) Physics.
- (iii) Inorganic Chemistry.
- (iv) Mining.

### V.—FIRST MEDICAL EXAMINATION.

Candidates are required to pass in the following three subjects at one Examination :—

- (i) Physics.
- (ii) Chemistry (Organic and Inorganic).
- (iii) Elementary Biology.

*The Matriculation or other Preliminary Examination must be passed before this Examination can be taken.*

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The standard required in Pure Mathematics is the same as that of Higher Mathematics in the Matriculation Examination. Candidates will find particulars of the other courses under the respective subjects, in the General Syllabus, the course in each case being described as Course I.

There will be a practical examination in Physics, Chemistry, and Elementary Biology. Examiners will not be precluded from holding a *viva voce* examination in any subject if they think fit.

## VI.—INTERMEDIATE ARTS EXAMINATION.

Candidates are required to pass at one examination in five subjects, chosen from the following list :—

- (i) Latin.
- (ii) English Language and Literature.
- (iii) Either Pure Mathematics or Logic.
- (iv) and (v) Two of the following, of which one must be a modern foreign language :—Greek, French, German, Italian, Spanish, Logic or Pure Mathematics (if not already selected under heading iii), a Physical or Natural Science, General European History, Geography.

Candidates will find full particulars of the above courses under the respective subjects in the General Syllabus, the course in each case being described as Course I.

Two examination papers will be set in each of the five subjects. There will also be a *viva voce* examination in Latin, Greek and modern foreign languages. Examiners will not be precluded from holding a *viva voce* examination in any subject if they think fit.

Candidates who fail at the Intermediate Arts Examination in June in the subject of either Mathematics or Logic only, may be allowed to repeat that one subject at the September Examination.

Candidates taking the Intermediate Arts Examination as the entrance examination to any of the Honour Schools are not required to pass in either Mathematics or Logic, provided they pass in a higher paper in the principal subject of the Honour School selected.

Non-matriculated candidates for the Intermediate Arts Examination who do not take Pure Mathematics as one of their subjects are required to pass the Matriculation Examination in Mathematics before receiving credit for the Intermediate Examination ; and the same rule applies to the Entrance Examination to Honour Schools.

## DEGREES.

The University confers the Degrees of Bachelor of Science (B.Sc.), Master of Science (M.Sc.), and Doctor of Science (D.Sc.) in the Faculty of Science ; the Degrees of Bachelor of Arts (B.A.), Master of Arts (M.A.), Doctor of Letters (D.Litt.), Doctor of Philosophy (D.Phil.), Bachelor of Music (B.Mus.), and Master of Music (M.Mus.) in the Faculty of Arts ; Bachelor of Commerce (B.Com.), and Master of Commerce (M.Com.) in the Faculty of Commerce ; and the Honorary Degree of Doctor of Laws (LL.D.).

Degrees are conferred at a special Congregation of members of the University held for the purpose at least once a year. The formal admission to degrees is made by the Chancellor, or, in his absence, by the Pro-Chancellor. No candidate is entitled to the use of a degree or to any of the privileges of a graduate until he has thus been admitted to the degree and has signed the Register of Graduates.

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## REGULATIONS FOR DEGREES IN THE FACULTIES OF SCIENCE AND ARTS.

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No undergraduate can obtain a degree without attendance upon certain prescribed courses of study in the University, extending over a period of at least three sessions after matriculation ; and no attendance upon lectures in the University prior to matriculation will be accepted as any part of the qualification necessary for a degree without special leave from the Senate. The work of candidates is estimated (1) by means of periodical exercises, class examinations, and inspection of laboratory note-books throughout the session, and (2) by means of

examinations at the end of the session. At the end of each session every undergraduate is required to be certified that he has attended to the satisfaction of the Professors concerned the necessary lectures, laboratory and exercise classes, and that he has passed such class examinations and performed such other exercises as his teachers may prescribe in connexion with their own courses, to the satisfaction of the Faculty, before being admitted to the University examination, and no matriculated student who has been in attendance on courses of study can be allowed to enter for an Intermediate Examination as an External candidate. If a student is prevented by illness from attending any of the terminal Examinations, a medical certificate must be sent to the Dean of the Faculty.

#### B.Sc. DEGREE IN PURE SCIENCE.

Candidates for the Bachelor's Degree in Pure Science are required to have spent at least three sessions in attendance on courses of study in the University after matriculation in the Faculty and to pass two University Examinations, the *Intermediate* and the *Final*, in addition to the class examinations held by the Professors in connexion with the courses of study. But if candidates before entrance to the University have passed the Intermediate Examination (or an examination recognised by the University as equivalent to that examination), they will be allowed to sit for the Final Examination after two years of study; *but in no case will the degree be conferred on such candidates until they have completed a further year of study to the satisfaction of the Faculty, after which they become eligible for the degree of Master of Science.*

Candidates are further required to pass an examination in French and German, showing that they possess a knowledge sufficient to enable them to read scientific treatises or memoirs in these languages, before being admitted to the degree. Candidates who have taken either of these

languages at the Matriculation Examination will be exempted from further examination in that language. In special cases other modern languages may be substituted for French and German with the approval of the Faculty.

Foreign students are allowed to count English as one of the languages for the B.Sc. Degree, so that they will be required to offer only one other European language in addition to their native language and English.

#### FIRST YEAR COURSES.

After matriculation in the Faculty, candidates who have not passed the Intermediate Examination are required to attend courses of study for at least one session in three of the following subjects :—

- (i) Pure Mathematics.
- (ii) Physics.
- (iii) Chemistry.
- (iv) Elementary Biology (Zoology and Botany)

Candidates who are qualified by attendance and progress in two or more of the three subjects will be admitted to the Intermediate Examination in those subjects in June.

Candidates must pass in the three selected subjects in order to complete the examination, but they may present themselves and pass in two subjects at one examination, and take the remaining subject at a later examination.

Two printed examination papers will be set in each section of the examination, and there will be a practical examination in Physics, Chemistry, Zoology, and Botany. Examiners will not be precluded from holding a *viva voce* examination in any subject, if they think it desirable.

There will be a supplementary examination in September, and candidates who have taken and passed in two or more of their subjects may complete the examination in September. Candidates who have failed in any of the subjects in June may be allowed by the Board of

Examiners to sit for the Examination again in September, or may be required to attend a further course in that subject before being admitted to a subsequent examination.

### SECOND AND THIRD YEARS' COURSES.

After passing the Intermediate Examination candidates are required to take University Courses in one principal subject and two subsidiary subjects, or in two principal subjects, under the following groups :—

*Principal Subjects.*—Mathematics (Pure and Applied), Physics, Chemistry, Geology, Zoology, Botany, Physiology, Anatomy and Anthropology, Biology, and Chemistry of Fermentation (together with Chemistry as a double subsidiary subject).

*Subsidiary Subjects.*—Pure Mathematics, Applied Mathematics, Elementary Pure Mathematics together with Elementary Applied Mathematics, Physics, Chemistry, Geology, Botany, Zoology, Physiology, Logic, Psychology, Metallurgy, Mining, Chemistry of Fermentation, Engineering, Education.\*

*Double Subsidiary Subjects.*—(each counting as two) Physics, Chemistry, Geology, Botany, Zoology, Anatomy and Anthropology, Physiology, Chemistry of Fermentation.

The principal subjects must be studied for two years, while subsidiary subjects need in general only be studied for one year ; but Subsidiary Mathematics and Education extend over two years. By the selection of a double subsidiary subject a student is enabled to continue the study of a subsidiary subject for a second year, instead of choosing a fresh subsidiary subject.

Candidates who are qualified by attendance and progress in the selected subjects are admitted to the Final Examination. The examinations in principal subjects are of a higher standard and cover a wider range than the examinations in subsidiary subjects, and must in general

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\*Education may only be taken by Students in the Training College.

be taken at the end of the third year ; but in Mathematics, Physics, Geology, and Education candidates may be examined in the first part of the course at the end of the second year.

The examination in a subsidiary subject studied during the year following the completion of the Intermediate Examination may be taken at the end of the year.

The examination will be conducted by means of printed papers, and also by tests of practical work ; but the Examiners will not be precluded from holding a *viva voce* examination in any subject, if they think it desirable.

The B.Sc. class lists will be published in three divisions, the first of which will be called Honours and will contain the names of those candidates who distinguish themselves in their principal subject.

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#### B.Sc. DEGREE WITH HONOURS IN CHEMISTRY.

Three years' study after Intermediate standard has been reached is obligatory.

There will be no alteration in the requirements as regards subsidiary subjects. Under ordinary circumstances a candidate for this degree will have disposed of his subsidiary subjects at the end of the second year after Intermediate, and the whole of the third year will be devoted to Chemistry.

The principal changes in the chemical curriculum will be that the *special* lectures (III) on Organic Chemistry, and an Advanced Course in General and Physical Chemistry will only be taken by those students who are preparing for this Degree with Honours. These lectures will be attended in the third year after Intermediate.

During the first and second years after Intermediate students must work as heretofore a minimum of 15 hours weekly in the Chemical laboratory, whilst during the third year the minimum will be 24 hours.

## B.Sc. IN APPLIED SCIENCE.

## I.—ENGINEERING.

Candidates may obtain the Degree of Bachelor of Science in any of the three branches of Engineering, viz., (a) Mechanical Engineering, (b) Civil Engineering, (c) Electrical Engineering, after attendance on prescribed courses of study in the University extending over a period of four years after matriculation.

But if a candidate before entrance to the University has passed the Intermediate Science or the First Engineering Examination (or an examination recognised by the University as equivalent), and completed matriculation, he will be allowed to enter on the second year courses of study, and will be eligible for the degree after three years instead of four.

Candidates are further required to pass an examination in French and German, showing that they possess a knowledge sufficient to enable them to read scientific treatises or memoirs in these languages, before being admitted to the degree. Candidates who have taken either of these languages at the Matriculation Examination will be exempted from further examination in that language. In special cases other modern languages may be substituted for French and German with the approval of the Faculty.\*

The courses of study are briefly indicated in the following tables, and further particulars of the various subjects may be found in the Engineering Syllabuses.

## FIRST YEAR COURSES.

The prescribed courses for the first year are the same in all the three branches of Engineering.

- (i) Engineering Lectures, Drawing, and Workshop.
- (ii) Mathematics, Pure and Applied.
- (iii) Physics, Lectures and Laboratory.
- (iv) Chemistry, Lectures and Laboratory.

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\* For regulation respecting Foreign Students see page 178.

## SECOND YEAR COURSES.

- (i) Engineering Lectures, Exercises, Drawing, and Workshop.
- (ii) Mathematics, Pure and Applied.
- (iii) Physics, Lectures.
- (iv) Geology, for Civil Engineers, or Metallurgy, for Mechanical and Electrical Engineers.

## THIRD YEAR COURSES.

*A.—For Mechanical Engineers.*

- (i) Engineering Lectures, Laboratory, Drawing and Workshop.
- (ii) Mathematics.
- (iii) Workshop in the Summer Vacation.

*B.—For Civil Engineers.*

- (i) Engineering Lectures, Laboratory, Drawing and Workshop.
- (ii) Mathematics.
- (iii) Surveying in the Summer Vacation.

*C.—For Electrical Engineers.*

- (i) Engineering Lectures, Laboratory, Drawing and Workshop.
- (ii) Mathematics.
- (iii) Workshop in the Summer Vacation.

## FOURTH YEAR COURSES.

Candidates in their fourth year will spend their whole time at Engineering subjects, including Lectures, Laboratory, Drawing and Workshop. Civil Engineers also attend Lectures, Laboratory, and Field Work in Geology. All candidates are required to attend a course in Accounting.

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At the end of each Session there will be a University Examination on the prescribed courses of study, to which candidates will be admitted who are qualified by attendance and progress.

In each year there are certain essential subjects in which students must pass before being allowed to enter the courses of the following year.

There will be supplementary examinations in September for first, second and third year candidates to enable them to complete the examination if permitted by the Board of Examiners ; but the Board of Examiners may if it thinks fit require any candidate to attend a further course of study in any subject before sitting for another examination.

The degree of B.Sc. (Engineering), provided that the Engineering Matriculation Examination be passed on entering upon the course of study, is recognised as a preliminary qualification for appointment of Assistant Engineers to the permanent establishment of the Public Works Department of India, and as exempting from the examination of the Institution of Civil Engineers for Associate Membership.

The University Laboratories in Engineering are also included in the list of suitable technical schools for the training of Engineers in the Mercantile Marine, issued by the Board of Trade

## II.—METALLURGY.

Candidates may obtain the Degree of Bachelor of Science in Metallurgy after attendance on prescribed courses of study extending over a period of three years after matriculation, and passing examinations at the end of each year.

Candidates are required to pass an examination in French and German, showing that they possess a knowledge sufficient to enable them to read scientific treatises or memoirs in these languages, before being admitted to the Degree. Candidates who have taken either of these languages at the Matriculation Examination will be exempted from further examination in that language. In special cases other modern languages may be substituted for French and German with the approval of the Faculty.\*

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\* For regulation respecting Foreign Students see page 178.

The general arrangements for the examinations are similar to those already described in connexion with the Degree in Engineering.

The prescribed courses are as follows :—

#### FIRST YEAR COURSES.

- (i) Pure Mathematics.
- (ii) Physics, Lectures and Laboratory.
- (iii) Chemistry, Lectures and Laboratory.
- (iv) Metallurgy, Lectures and Laboratory.
- (v) Surveying.

#### SECOND YEAR COURSES.

##### *A.—For Metallurgists.*

- (i) Metallurgy, Lectures and Laboratory.
- (ii) Engineering, Lectures, Drawing and Workshop.
- (iii) Geology, Lectures and Laboratory.
- (iv) Metal Mining.
- (v) German.

##### *B.—For Metallurgical Chemists.*

- (i) Metallurgy, Lectures and Laboratory.
- (ii) Engineering, Lectures, Drawing and Workshop.
- (iii) Chemistry, Lectures and Laboratory.
- (iv) German.

#### THIRD YEAR COURSES.

##### *A.—For Metallurgists.*

- (i) Metallurgy, Lectures and Laboratory.
- (ii) Mining, Lectures, Surveying, and Laboratory.
- (iii) Engineering, Lectures and Laboratory.
- (iv) Accounting.

##### *B.—For Metallurgical Chemists.*

- (i) Metallurgy, Lectures and Laboratory.
- (ii) Chemistry, Lectures and Laboratory.
- (iii) Engineering, Lectures and Laboratory.
- (iv) Accounting.

For further particulars of these courses, see the Syllabus of Metallurgy.

### III.—MINING.

In order to obtain the Degree of Bachelor of Science in Mining, candidates are required as a rule to attend a prescribed course of study extending over a period of at least three years after matriculation, and pass examinations at the end of each year ; but with the consent of the Faculty on entrance to the University candidates may take the Matriculation Examination at the end of the first year, and on passing may then count that first year on condition that their work during the year has been satisfactory. Candidates are further required to have practical experience in a mine for at least two months in each year, or to have had at least four months of such experience before entering on their courses in the University.

Candidates are further required to pass an examination in French and German, showing that they possess a knowledge sufficient to enable them to read scientific treatises or memoirs in these languages, before being admitted to the degree. Candidates who have taken either of these languages at the Matriculation Examination will be exempted from further examination in that language. In special cases other modern languages may be substituted for French and German with the approval of the Faculty.\*

The general arrangements for the examinations are similar to those already described in connexion with the Degree in Engineering.

The prescribed courses are as follows :—

#### FIRST YEAR COURSES.

- (i) Mathematics.
- (ii) Physics, Lectures and Laboratory.
- (iii) Chemistry, Lectures and Laboratory.
- (iv) Mining, Lectures and Surveying.
- (v) Drawing and Workshop.

#### SECOND YEAR COURSES.

- (i) Applied Mathematics.
- (ii) Mining, Lectures, Laboratory, and Surveying.

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\* For regulations respecting Foreign Students see page 178.

- (iii) Geology, Lectures and Laboratory.
- (iv) Metallurgy, Lectures and Laboratory.
- (v) Engineering, Lectures and Drawing.

#### THIRD YEAR COURSES.

- (i) Mining, Lectures, Laboratory, and Surveying.
- (ii) Engineering, Lectures and Laboratory.
- (iii) Geology, Lectures.
- (iv) Metallurgy, Laboratory.
- (v) Accounting.
- (vi) German.

For further particulars of these courses, see the Syllabus of Mining.

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#### DEGREES IN ENGINEERING, MINING, OR METALLURGY FOR HOLDERS OF DIPLOMAS OF THE UNIVERSITY OF OXFORD.

Graduates of the University of Oxford who have obtained the Diploma in scientific Engineering and Mining subjects granted by that University are eligible for the Degree of B.Sc. in Engineering, Mining, or Metallurgy, after two years' study, without examination in the previous parts of the course; provided that Mechanical and Electrical Engineers have taken at Oxford the subjects (d) Engineering Principles and Machine Drawing, and (i) Electricity, and Mining students have taken at Oxford the subjects (e) Surveying, (f) Geology, and (h) Mining and Engineering Hygiene, and Mine Ventilation.

Such students should be matriculated as undergraduates of the University before they commence their course.

#### M.Sc. DEGREE.

Bachelors of Science may be admitted to the degree of Master of Science after a further course of study extending over not less than one academic year.\* Candidates are required—

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\* In ordinary cases, the year of study must be spent at the University of Birmingham; but candidates desirous of pursuing some special line of study at some other place may receive permission to do so on the recommendation of the Faculty.

- either (1) to present a thesis and, if the Examiners think it desirable, to pass a *viva voce* examination ;  
 or (2) to pass an examination, both written and practical.

Bachelors of Science in Engineering, Metallurgy, and Mining may be admitted to the Degree of M.Sc. either as already provided after one year's further study in the University subsequent to the B.Sc., or after two years subsequent to the B.Sc.; without attendance at the University ; such candidates will be required—

- either (1) to present a thesis, and, if the Examiners think it desirable, to pass a *viva voce* examination ;  
 or (2) to pass an examination, both written and practical.

Joint work is allowed for the Degree of M.Sc. in Applied Science when—and only when—the work is done at the University of Birmingham, and in all cases of joint work the candidates shall present separate theses, and they shall be required to pass an examination of a kind to be decided by the Examiners, both on the subject of their theses and on allied subjects. In Pure Science joint theses for the Degree of M.Sc. are not allowed without the previous consent of the Faculty.

*Forms of entry may be obtained from the Registrar and should be returned to him, together with two type-written copies of the thesis presented, on or before May 3rd.*

#### D.Sc. DEGREE.

Candidates may be admitted to the degree of Doctor of Science, after the expiration of at least five academic years after qualifying for the B.Sc. degree, or three years from the Master's Degree, whichever time is the shorter, on the presentation and approval of printed and published work embodying the results of original research.

The Examiners may require a candidate to present himself for any examination or further test, theoretical

or practical, which they may think necessary, and in the case of degrees in Applied Science a candidate must produce satisfactory evidence of practical experience.

*Forms of entry may be obtained from the Registrar, and should be returned to him, together with two copies of the thesis presented, on or before May 3rd.*

For ADMISSION OF GRADUATES of other Universities, see page 203.

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### ORDINARY COURSES FOR THE B.A. DEGREE.

Candidates for the Degree of Bachelor of Arts are required to have spent at least three sessions in attendance on lectures in the University after having been matriculated in the Faculty, and to pass three University Examinations, the Intermediate, and the First and Second Degree Examinations, in addition to the Class Examinations held by the Professors in connexion with their courses.

Candidates who pass the Intermediate Examination before entering the University are allowed to commence their studies at the second year's courses, and are eligible to sit for their final B.A. Examination after two years of study. Such candidates will not be eligible to receive the degree until they have completed another year of study, after which they will be eligible to receive the M.A. Degree.

### FIRST YEAR'S COURSES.

After being matriculated in the Faculty, candidates who have not passed the Intermediate Examination are required to attend courses of study for at least one session in each of the following subjects :—

- (i) Latin.
- (ii) English Language and Literature.
- (iii) Either Pure Mathematics or Logic.

- (iv) Two of the following, of which one must be a modern foreign language :—Greek, French, German, Italian, Spanish, Logic or Pure Mathematics (if not already selected under iii), a Physical or a Natural Science, General European History, Geography.

Candidates who are qualified by attendance and progress in three or more of these subjects, will be admitted to the Intermediate Examination in those subjects.

Two printed examination papers will be set in each of the five subjects of Examination. There will also be a *viva voce* examination in Latin, Greek, and Modern Foreign Languages. The Examiners, however, will not be precluded from holding a *viva voce* examination in any subject, if they think it desirable.

The Intermediate Pass List will be issued in three divisions, the first of which will contain the names of those candidates who pass with distinction.

There will be a supplementary examination in September, and candidates who have taken and passed in three or more of their subjects may complete the examination in September. Candidates who have failed in any of the subjects in June may be allowed by the Board of Examiners to sit for the examination again in September, or may be required to attend a further course in that subject before being admitted to a subsequent examination, but candidates who fail to pass in any subject at the September examination shall be required to repeat the course in such subjects unless specially excused by the Faculty.

#### SECOND AND THIRD YEARS' COURSES.

Candidates are required to take either a two-year course of study in each of four principal subjects, or a two-year course of study in each of three principal subjects, and a one-year course in each of two subsidiary subjects. When four principal subjects are taken, one subject must be selected from each of the following groups i—iv ; and

when five subjects are taken one must be selected from each of the following groups i—v :—

- (i) One Ancient Language and Literature (Latin, Greek, or Hebrew.)
- (ii) One Modern Foreign Language and Literature (French, German, Italian, Spanish, or, provided that Greek is not taken under heading (i), Hellenistic Greek).
- (iii) Either English Literature or History (Ancient or Modern).
- (iv) Either Mathematics or Philosophy or Education.\*
- (v) A "special" subject to be selected among the subjects taught in the University at compatible hours. This subject must be either—
  - (a) A fifth subject (other than the four already selected) from one of the preceding four groups, or
  - (b) A fifth subject not contained in any of the above groups, studied for one year as a subsidiary subject; e.g., Logic (if not already taken at the Intermediate Examination), a subject or group of subjects taught in the Faculty of Commerce, as approved by the Faculty of Arts, a Physical or Natural Science.

The following regulations have been adopted for those students of the Lichfield and Handsworth Theological Colleges who are prepared to enter upon the course for the B.A. Degree at the University :

#### INTERMEDIATE EXAMINATION.

- (i), (ii) and (iii) Three subjects of the following five, of which one must be Latin or Hebrew

- (a) Latin.
- (b) European History.
- (c) Hebrew.
- (d) English Language and Literature.
- (e) Social Economics.

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\* Education may only be taken as a principal subject.

- (iv) Logic or Mathematics or Moral Philosophy or Psychology.
- (v) Greek or Hellenistic Greek.

All these subjects would be taught in the University except Hebrew.

#### SECOND AND THIRD YEARS.

##### *Principal Subjects*—

- (i) Hellenistic Greek, including New Testament Criticism and Exegesis.
- (ii) Either Hebrew or the History of Western Asia, including some Comparative Religion.
- (iii) Philosophy, viz., the combination of subsidiary subjects Nos. 3 and 4, below.
- (iv) Biblical and Historical Theology.

##### *Subsidiary Subjects*—

- (i) Ecclesiastical History.
- (ii) Latin.
- (iii) Moral Philosophy or Psychology, if not taken in the Intermediate Examination.
- (iv) Philosophy of Religion.
- (v) Social Economics.
- (vi) English Language and Literature.

Each student to choose either four principal subjects, or three principal subjects and two subsidiary subjects.

Of these subjects the following would be taught in the University : Principal subjects—No. 1 (the first year only) and No. 3. Subsidiary subjects—All (arrangements may be made for recognising a course on No. 4 at the Theological College).

There will be a written examination at the end of each Session, at which two printed examination papers will be set in each subject studied during that Session, and candidates who are qualified by attendance and progress will be admitted to these examinations.

There will also be a *viva voce* examination in Latin, Greek and Modern Foreign Languages. The Examiners, however, will not be precluded from holding a *viva voce* examination in any subject, if they think desirable.

Candidates who pass the examination in one or more of their principal subjects shall not be required to be re-examined in those subjects, provided they have attained a standard equal to the second division at least.

The B.A. pass list will be issued in three divisions, the first of which will contain the names of those candidates who pass with distinction in one or more of their principal subjects.

Candidates who have failed in any of the subjects offered for examination may be required by the Faculty to attend a further course of study in that subject before being admitted to a subsequent examination.

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#### M.A. DEGREE.

Bachelors of Arts may be admitted to the degree of M.A. after at least one further year of study in the University on passing an Examination in one or in two of the principal subjects taken at the B.A. Degree, and presenting a dissertation indicative of acquaintance with the methods of research and connected with the subject or with one of the subjects offered for examination. In cases where the course occupies more than one year, the candidate may for special reasons be allowed by a resolution of the Faculty of Arts in each case, to take the examination in two parts. The dissertation may be submitted during the year following the written examination. The candidate will be specially examined, either orally or in writing, by the examiners on the subject of such dissertation and the Degree will not be awarded until after the dissertation has been approved. Two type-written copies of the dissertation must be sent to the Registrar on or before May 3rd. Candidates studying for one year only will be required to give their whole time to study, and to attend the lectures prescribed in their subject or subjects, but will not be required to sit for terminal examinations. Candidates who cannot give their whole time to study may extend their studies over two or more

years ; but in every such case candidates must obtain the Faculty's approval of the course of study they intend to pursue, and must satisfy the Faculty at the end of their first year that their work and progress are satisfactory. In ordinary cases the year or years of study must be spent at the University of Birmingham ; but candidates desirous of pursuing some special line of study at some other University (British or Foreign) may receive permission to do so on the recommendation of the Faculty.

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### HONOUR SCHOOLS.

These courses are designed to allow students, especially those who are preparing for the career of a teacher in the higher forms of secondary schools, to devote themselves to a smaller number of subjects studied at a much higher standard than those prescribed in the preceding regulations.

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#### (a) HONOUR SCHOOL OF MODERN LANGUAGES.

Candidates may be admitted to the School of Modern Languages after passing the Intermediate Examination in Arts, the following subjects being taken :—(i) French, (ii) German, (iii) Latin, (iv) English Language and Literature, (v) either Mathematics or Logic. Candidates may, however, substitute for Mathematics or Logic higher papers in their principal subject.

This Examination may be taken either at entrance to the University in lieu of the Matriculation Examination, or at the end of one year's course of study at the University after passing the Matriculation Examination.

Candidates not having already been matriculated who offer Logic or higher papers in their principal subject instead of Mathematics at the Intermediate Examination will be required to qualify in Mathematics at the Matriculation Examination, either in July or September.

After completing a three years' course of study, subsequent to passing the Intermediate Examination, and passing three examinations, and submitting a thesis approved by the Examiners (two type-written copies of which must be presented), students of the School will be admitted to the degree of Master of Arts in the School of Modern Languages.

Students in the School of Modern Languages are permitted to spend one or two terms of their three years' course at a French or German University and the time spent there is considered as a part of the ordinary course of study in the School, provided that they have been regularly matriculated and attend regular courses of lectures at the foreign University.

The course for the degree of Master of Arts in the School of Modern Languages embraces the following subjects of study :—

- (i) French *or* German, taken as a principal subject.
- (ii) German *or* French *or* English, taken as a subsidiary subject.
- (iii) An additional subject during the first two years of the course, viz., either German *or* French *or* English *or* Latin.

The First Examination in the School of Modern Languages will be held at the end of the first year of study.

The Second Examination in the School of Modern Languages will be held at the end of the second year of study.

The Final Examination in the School of Modern Languages will be held at the end of the third year of study, and will include papers of the standard of the ordinary M.A. Examination in the following groups, of which Groups I and II must be taken in the principal subject, and Group I in the subsidiary subject :—

**French.****GROUP I.**

- (i) French Essay.
- (ii) Unprepared French Translation.
- (iii) Selected French Authors.
- (iv) History of French Literature.

**GROUP II.**

- (i) French History and Institutions.
- (ii) Old and Middle French Texts.
- (iii) Romance Philology.
- (iv) A selected period of French Literature.

**German.****GROUP I.**

- (i) German Essay.
- (ii) Unprepared German Translation.
- (iii) Selected German Authors.
- (iv) History of German Literature.

**GROUP II.**

- (i) German History and Institutions.
- (ii) Old and Middle High German Texts.
- (iii) Germanic Philology.
- (iv) A selected period of German Literature.

**English (if taken as a subsidiary subject).**

- (i) English Essay.
- (ii) Shakespeare.
- (iii) Selected English Authors.
- (iv) History of English Literature

**(b) HONOUR SCHOOL OF CLASSICS.**

Candidates may be admitted to the School of Classics after passing the Intermediate Examination in Arts, the following subjects being taken :—(i) Latin ; (ii) Greek ; (iii) English Language and Literature ; (iv) A Modern Foreign Language ; (v) Either Mathematics or Logic. Candidates may, however, substitute for Mathematics or Logic, higher papers in their principal subject.

This Examination may be taken either at entrance to the University in lieu of the Matriculation Examination, or at the end of one year's course of study at the University after passing the Matriculation Examination.

Candidates not having been already matriculated who offer Logic or higher papers in their principal subject instead of Mathematics at the Intermediate Examination will be required to qualify in Mathematics at the Matriculation Examination, either in July or in September.

After completing a three years' course of study subsequent to passing the Intermediate Examination, and passing three examinations, and submitting a thesis approved by the Examiners (two type-written copies of which must be presented), students of the School will be admitted to the Degree of Master of Arts in the School of Classics.

The course for the degree of Master of Arts in the School of Classics embraces the following subjects of study :—  
(i) Latin ; (ii) Greek ; (iii) English Literature, or some modern foreign language and literature, taken as an additional subject during the first two years of the course.

The First Examination in the School of Classics will be held at the end of the first year of study.

The Second Examination in the School of Classics will be held at the end of the second year of study.

The Final Examination in the School of Classics will be held at the end of the third year of study, and will include papers of the standard of the ordinary M.A. Examination in Latin and Greek, as follows :—(i) Selected authors (Latin) : two papers ; (ii) Selected authors (Greek) : two papers ; (iii) Unseen translation (Latin) : one paper ; (iv) Unseen translation (Greek) : one paper ; (v) Composition (Latin) : one paper ; (vi) Composition (Greek) : one paper ; (vii) History of Literature and Language, with special reference to the authors selected (Latin and Greek) : two papers ; (viii) Ancient History and Archæology : one paper ; (ix) Ancient Philosophy : one paper.

## (c) HONOUR SCHOOL OF ENGLISH LITERATURE.

Candidates may be admitted to the School of English Literature after passing the Intermediate Examination in Arts. This Examination may be taken either at entrance to the University in lieu of the Matriculation Examination, or at the end of one year's course of study at the University, after passing the Matriculation Examination.

A higher paper in English Literature may be substituted for Mathematics or Logic at the Intermediate Examination.

Candidates not having already been matriculated who offer Logic or higher papers in English Literature instead of Mathematics at the Intermediate Examination will be required to qualify in Mathematics at the Matriculation Examination, either in July or September.

After completing a three years' course of study, subsequent to passing the Intermediate Examination, and passing three examinations, and on the approval of a thesis (two type-written copies of which must be presented), students of the School will be admitted to the Degree of Master of Arts in the School of English Literature.

The course for the Degree of Master of Arts in the School of English Literature embraces the following subjects of study :—

1. *Principal Subject* : English Literature studied for three years.
2. *Subsidiary* : A classical or modern language studied for two years.
3. *Additional* :
  - (i) A second classical or modern language studied for one year ; but if Latin be not taken as a Subsidiary subject, it must be taken as an Additional subject.

- (ii) English History studied for one year.
- (iii) Philosophy studied for one year.

The First Examination in the School of English Literature will be held at the end of the first year of study, and candidates will be examined in English, two languages, and History *or* Philosophy.

The Second Examination in the School of English Literature will be held at the end of the second year of study, and candidates will be examined in English, the Subsidiary Subject, and Philosophy *or* History.

The Final Examination will be held at the end of the third year of study, and will comprise papers of the standard of the ordinary M.A. Examination. The following scheme of papers may be taken as representing the scope of the examination :—

1. History of English Literature, (i), with set books.
2. History of English Literature, (ii), with set books.
3. History of English Literature, (iii), with set books.
4. Shakespeare.
5. Old English Literature, with translation.
6. Middle English Literature, with translation.
7. The relations of English Literature with the literatures of those languages chosen as subsidiary and additional subjects.
8. Special subject.

In lieu of papers 7 and 8, candidates may offer the general philology of the English Language, and a special philological subject.

The set books will be those taken by Courses III and IV during the three years preceding the examination. Candidates will also be expected to show a general but

first hand acquaintance with the principal English authors, and to have studied the history of literary criticism in England.

Students in the School of English Literature are required to attend in their principal, subsidiary, and additional subjects such lectures as are recommended to them by the Professor.

(d) HONOUR SCHOOL OF HISTORY.

Candidates may be admitted to the School of History after passing the Intermediate Examination in Arts, the following subjects having been taken for Intermediate.

- (1) Mathematics or Logic.
- (2) Latin or Greek.
- (3) English Literature.
- (4) French or German.
- (5) History.

Candidates may, however, substitute for Mathematics or Logic higher papers in History.

This Examination may be taken, either at entrance to the University, in lieu of the Matriculation Examination, or at the end of one year's course of study at the University, after passing the Matriculation Examination.

Candidates not already matriculated who offer Logic or the higher papers in History instead of Mathematics, at the Intermediate Examination, will be required to qualify in Mathematics at the Matriculation Examination either in July or September.

After passing the Intermediate Examination, students of the School of History must complete a three years' course of study; at the close of this, having passed three examinations, and submitted a thesis approved by the Examiners (two type-written copies of which must be presented), they will be admitted to the Degree of Master of Arts in the School of History.

The Course for this Degree embraces the following subjects of study :—

1. Principal Subject : History, studied for three years.
2. Subsidiary :
  - (a) Latin, studied for one year.
  - (b) French, studied for one year.
  - (c) German, studied for one year.
  - (d) Economic History, studied for one year (one term's lectures).
  - (e) Political Theory, studied for one year (one term's lectures).

The First Examination in the School of History will be held at the end of the first year of study.

The Second Examination at the end of the second year.

The Final Examination at the end of the third year.

In the First Examination, candidates will be examined in History (including Economic History) and Latin

In the Second Examination, in History, Latin, French, and German.

In the Final Examination, in :—

- \*1. General European History.
  - (a) Mediæval (one paper).
  - (b) Modern (one paper).
- 2. British Institutions (one paper).
- \*3. A Special Period (B.A., one paper).
- \*4. The M.A. Course.
- 5. Ancient History (one paper).
- 6. Economic History and Political Theory (one paper).
- 7. Latin, French, and German Translation (one paper).

Students in the School of History are required to attend in their Principal and Subsidiary subjects such lectures as are recommended to them by the Professor.

#### D.Phil. and D.Litt. Degrees.

Masters of Arts may be admitted to the Degree of D.Phil. (Doctor Philosophiæ) or D.Litt. (Doctor Litterarum) after the expiration of at least three academic years from the Master's degree, on the presentation and approval

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\* These papers will include special questions on Historical Sources.

of a thesis, embodying the results of original research, and after passing a *viva voce* examination on the subject of the thesis if the Examiners think it desirable. The thesis shall be submitted to a Board of Examiners, consisting of the two Examiners in the Department concerned, and an expert in the subject of the thesis, and no doctorate shall be awarded unless the Examiners report that the thesis is worthy of publication. Forms of application may be obtained from the Registrar, and should be returned accompanied by three printed or type-written copies of the thesis, on or before April 1st.

#### Degrees in the Faculty of Commerce.

For the Regulations respecting Degrees in the Faculty of Commerce, see page 437.

#### Degrees in Music.

For the Regulations respecting Degrees in Music see page 424.

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#### Examination Papers.

Papers set at University Examinations during the previous session are published as soon as possible after the commencement of each session, and may be obtained from Messrs. Cornish Bros., New Street, Birmingham.

#### Admission of Students to the University of Oxford.

Students of the University of Birmingham who have been in attendance for two years and upwards and have passed the corresponding examinations of the University are entitled, under certain conditions, to admission to the University of Oxford as affiliated junior students. Members of the University who have completed their three years' course of study and have passed the B.Sc. or B.A. Examination in the Honours Division or Division I are entitled for admission to the status and privileges of an affiliated student.

## AFFILIATION OF THE MIDLAND INSTITUTE.

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The Midland Institute has been affiliated to the University under Ordinance 79, whereby students attending classes at the Institute are admitted to the Intermediate Arts Examination of the University as internal students, subject to the following conditions :—

That in each year the syllabus of the lectures to be delivered at the Midland Institute for the Session commencing in October shall be submitted to the Faculty of Arts not later than the month of June, in order that the individual courses of lectures and teachers may be approved for recognition under Ordinance 79 ; and that no student shall be admitted to the Intermediate Arts Examination unless he is certified by the authorities of the Institute as having attended such courses for not less than 70 hours in each subject which he presents for examination.

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## LICHFIELD AND HANDSWORTH THEOLOGICAL COLLEGES.

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For Regulations affecting Students of Lichfield and Handsworth Theological Colleges, see page 190

## ADMISSION OF GRADUATES OF OTHER UNIVERSITIES.

### FACULTIES OF SCIENCE AND ARTS.

Graduates or persons who have passed degree examinations of other Universities, who present evidence satisfactory to the Faculty concerned that they are qualified to pursue a course of advanced study or research, are allowed to enter the University and to become candidates for the degree of Master in Pure Science or Master of Arts (without taking the Bachelor's degree) after one year of regular study or research.

Graduates in Applied Science of other Universities may on the same conditions become candidates for the degree of Master in Applied Science after a year of regular study or research.

Persons who take the Master's degree under this regulation will be allowed to become candidates for the Doctor's degree at any time after three years from the attainment of the Master's degree, without further attendance at the University.

Graduates or persons who have passed degree examinations of other Universities in Pure Science may be admitted to the courses in technical subjects prescribed for the two final years and may take the Degree of B.Sc. in those subjects after two years of study, provided that on entrance they give evidence satisfactory to the Professors concerned that they are sufficiently prepared to enter on the work at that stage.

Application, with full statement of the circumstances of the case, must be made to the Dean of the Faculty before the commencement of the Session.

All students admitted under this regulation must be matriculated at the commencement of their period of study, and are then called Graduate Students and are members of the Guild of Undergraduates.

## SECONDARY TEACHERS' DIPLOMA REGULATIONS FOR 1914-15.

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1. Candidates for the Secondary Teachers' Diploma shall have been admitted to a Degree in the University of Birmingham or in some other University of the United Kingdom, or shall have obtained such other qualifications as shall be approved by the Senate of the University as representing a standard equivalent to such degree.
2. The course for candidates for the Diploma shall extend over one academic year, and shall consist of regular attendance in a Secondary School approved by the University for the purpose (§3) and of attendance upon courses of lectures in the University (§6).
3. The attendance at the Secondary School shall be regular and continuous throughout the year; and it shall be arranged so as to include not less than three school mornings of the week. Each candidate shall, under the general supervision of the Head Master or Head Mistress, be specially attached for given periods to the work of a Master or Mistress, who shall make the candidate as thoroughly acquainted as possible with school methods, arrangements of curriculum, etc. Any work (including preparation for lessons) done by the candidate in connection with the school shall not extend beyond the ordinary hours of morning school. The preparation of lessons need not necessarily be done at the School.
4. A satisfactory report from the Head Master or Head Mistress shall be presented before the candidate can be admitted to the examination.
5. Each candidate will be required in the course of the year to give specimen lessons to a class of the school under the joint supervision of the Head Master or Head Mistress and of the University authorities.

6. Candidates shall attend courses of lectures at the University on such subjects as the following :—Theory and Practice of Teaching, History of Educational Ideas, Psychology, School Hygiene, Voice Production, and Methods of Teaching in Specific subjects. Such lectures shall average not less than five hours per week throughout the year. It will be arranged that the lectures be delivered at the University during the afternoon. The course of attendance at the University may also, by arrangement with the City of Birmingham Education Committee, include observation of the method and arrangements of elementary schools.

7. The examination shall take place, as a rule, during June, and shall consist both of written papers and of the delivery of practical lessons. The examination papers, while following the general lines of the courses of lectures, which have been attended at the University, will not be confined to the actual subject-matter dealt with in them, but will include examination in a wider range of reading on educational subjects. The fee for the examination is £3.

8. The list of successful candidates will be issued in alphabetical order, and no special honours will be assigned to any candidate. The Diploma will indicate at what school the candidate has attended under §3.

The Head Masters or Head Mistresses of the following schools in the Midland district have signified their willingness to accept candidates for the Teachers' Diploma in their schools under the conditions of §§ 3, 4, 5, and their schools have been approved by the University for these purposes :—

#### FOR BOYS :

Birmingham,	King Edward's High School,
„	King Edward's Grammar School, Aston.
„	„ „ „ Camp Hill.
„	„ „ „ Five Ways.
„	Central Secondary School.

Birmingham, St. Philip's R.C. Grammar School.  
" George Dixon Secondary School.  
Bromsgrove School.  
Burton-on-Trent Grammar School.  
Cheltenham College.  
" Dean Close School.  
Coventry, King Henry VIII Grammar School.  
Denstone College.  
Derby School.  
Handsworth Grammar School.  
Kidderminster, King Charles I Grammar School.  
Leicester, Wyggeston Boys' School.  
Malvern College.  
Newcastle-under-Lyme School.  
Repton School.  
Shrewsbury School.  
Stourbridge, King Edward's Grammar School.  
Sutton Coldfield Grammar School  
Walsall Grammar School.  
Warwick, King's County School.  
Wolverhampton, Tettenhall College.  
Worcester, King's School.  
" Royal Grammar School.

FOR GIRLS;

Birmingham, King Edward's High School.  
" King Edward's Grammar School,  
" Camp Hill.  
" Handsworth.  
" George Dixon Secondary School.  
Coventry High School for Girls.  
Edgbaston High School for Girls.  
Edgbaston Church of England College.  
Leicester, Wyggeston High School for Girls.  
Shrewsbury High School for Girls.  
Stafford High School for Girls.  
Walsall, Queen Mary's High School for Girls.  
Warwick, King's High School.  
Wolverhampton High School for Girls.

## FOR BOYS AND GIRLS:

Birmingham Waverley Road Secondary School.  
West Bromwich Municipal Secondary School.

Candidates for the Secondary Teachers' Diploma shall pay a fee of £6 16s. 6d. per session in the case of men students, and £6 11s. per session in the case of women students, which shall include the Membership Fee. This fee will admit to the course on the History of Educational Ideas, to the course on Psychology (Professor Muirhead), and to a course on the General Principles of Teaching, and also to a number of short courses of lectures, which will be specially arranged for Diploma candidates. Acting Teachers in Secondary Schools will be admitted to these special courses on payment of the fee for each course--usually 5s.

Communications may be addressed to

Professor ALFRED HUGHES,

at the University.



## DIPLOMA OF ART INSTRUCTOR.

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A Diploma of Art Instructor is awarded to candidates trained by the University of Birmingham in conjunction with the Municipal School of Art. Candidates for this Diploma are required to have satisfied the following conditions :—

(a) They shall have pursued for not less than four years, in the Birmingham School of Art, a course of study, and *either* shall have attained the grade of Art Teacher or Master, *or* shall have passed through a course of instruction approved by the Committee of the Birmingham School of Art.

(b) Before having attended this course of instruction they shall have passed either (1) the Matriculation Examination of the University of Birmingham, or (2) the Matriculation Examination of some other University, or (3) such other examination or examinations as may be approved of by the Senate of the University. Provided that for the present, and until the Senate shall otherwise decide, the examination alluded to in this section may be passed during or after the course of study laid down in clause (a).

(c) Subsequently to the passing of the examination mentioned in clause (b) they shall have attended in the University of Birmingham during one year a course in English Literature, and at least two out of the following courses, each of which shall be of one year's duration. Such courses may be taken in separate years or in two years, but not, unless by special permission of the Senate, in one year :—

- (1) Modern History and Archæology
- (2) Ancient History and Archæology
- (3) French Language and Literature.
- (4) German Language and Literature.
- (5) Italian Language and Literature.
- (6) Latin.
- (7) Greek.
- (8) External Forms of Plants and Animals.
- (9) Earth Structure and Landscape.

(d) They shall have passed examinations in the subject of each course, which examinations may be passed separately at the termination of each course or otherwise.

(e) They shall have attended a course of Lectures on the Art of Teaching delivered in the University.

(f) Each candidate shall have acted for at least twelve months as an Assistant Teacher or Student Teacher under the supervision of one of the Teachers of the Birmingham School of Art, or of some other approved teacher, and shall have received, from such teacher, a certificate of competency to teach.

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## INSPECTION OF SCHOOLS.

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The University undertakes to inspect and report upon Secondary Schools in the Midland district under the following conditions :—

- (i) The school shall be open to the inspection of the Organising Professor of Education or other official of the University during the whole of the academic year, *i.e.*, September to July, on which the report is to be made.
- (ii) The representative of the University shall consider the curriculum of the school in conjunction with the Head Master or Head Mistress of the school ; he shall have the opportunity of hearing lessons given by members of the staff, and of discussing the methods of teaching with them ; and he shall from time to time see written work of the scholars.
- (iii) It is intended, however, that much freedom shall be given to teaching staffs as regards methods and curricula ; and they will not be required to conform to the conditions of any special examination.
- (iv) An examination will be held near the end of the school year, on which Senior or Junior School Certificates will be awarded. The papers will be set by examiners of the University, after they have made themselves fully acquainted with the aims and methods of the teachers of the classes concerned, and the scope of their work. But the school may, if preferred, make use of the papers set by the University for other purposes, *e.g.*, those of the Matriculation Examination.
- (v) The University will furnish a report to the authorities of the school at the end of the school year ; such report will take account of the results both of examination and inspection, and may deal with such matters as buildings and equipment.

(vi) If desired, one department of a school (*e.g.*, a modern side) may be inspected and reported upon separately.

(vii) The following will be the charges to the school :—

For Inspection, for a school of 100 scholars  
or less ..... .... .... .... £5 0 0

For Inspection, for a school of between 100  
and 200 scholars ..... .... .... £7 10 0

For the Report ..... .... .... £2 0 0

For the Certificate Examination, one shilling per  
candidate per paper, and (*a*) where special  
papers are set for the school, £1 rs. per paper ;  
(*b*) where the papers of the Matriculation Examina-  
tion are used no charge will be made for the paper.

Where a *viva voce* or practical examination in any  
subject is held, there will be a charge of 1s. per  
candidate if the examination takes place at the  
University ; if held elsewhere, the charge will be  
1s. per candidate, with a minimum of £1 1s.  
and the Examiner's travelling expenses.

(viii) Each scholar who qualifies for a Senior School  
Certificate must pay £1 before it can be issued to him,  
and will be required to pay £1 in addition if he uses it as  
the qualification for matriculating at the University.

Each scholar who qualifies for a Junior School Certificate  
must pay 10s. before it can be issued to him.



## FIRST YEAR SCIENCE COURSES

SUBJECT.	Course	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Pure Mathematics, Edgbaston ..	I.	11.30	11.30	..	11.30	11.30	..
" " Edmund Street ..	I.	12.30	12.30	..	12.30	12.30	..
Physics .. ..	I.	10.30	..	10.30	10.30	..	..
" (Practical) ..	.. {	11.30 or 2.30	..	or	..	2.30	..
Chemistry ..	{ IA* IB†	9.30 9.30	.. ..	9.30 9.30	9.30 9.30	.. ..	.. ..
" Tutorial ..	..	2.0	..	..	..	..	..
" Metals ..	..	..	..	11.30	..	..	..
Zoology .. ..	I. {	.. .. ..	12.30* 9.30† 2.30	.. .. ..	.. 9.30† to	12.30* 9.30† 2.30	.. .. ..
" (Practical) ..	.. {	.. ..	to 4.30	.. ..	.. ..	to† 4.30	.. ..
Botany .. ..	I.	..	4.30	..	..	4.0	..
" (Practical) ..	..						By arrangement.
Geography .. ..	I.						By arrangement.
Metallurgy .. ..	I.	..	..	..	..	..	10.0*
" (Practical) ..	..	..	..	..	2—5	..	..
German (Science Course)	..	..	9.30	..	..	9.30	..

\* Winter and Spring Terms.

† Summer Term.

## SECOND AND THIRD YEARS' SCIENCE COURSES.

SUBJECT.	Course	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Pure Mathematics,							
Edgbaston ..	II.	10.30	..	10.30	..	10.30	..
,, Edmund St.	II.	..	10.30	..	..	10.30	10.30
,, Edgbaston	III.	9.30	..	9.30	..	9.30	..
Applied Mathematics							
Edgbaston	I.	9.30	..	9.30	9.30 or 9.30	..	
,, Edmund St.	I.	..	9.30	..	..	9.30	9.30
,, Edgbaston	II.	10.30	..	10.30	..	10.30	..
Physics ..	II.	11.30	..	11.30	..	11.30	..
,, (Practical) ..	III.	..	9.30	..	9.30	..	9.30
Chemistry ..							
IIA†	..	4.0	4.0	..	..	..	..
IIB	..	..	..	..	..	..	9.30
IIIA†	..	4.0	4.0	..	..	..	..
IIIB†	4.0	..	..	4.0	..	..	..
,, (Practical)	..						
Zoology ..	II.	12.30†	..	12.30†	12.30†	..	..
,, (Practical)	III	9.30†	..	9.30†	9.30†	..	..
Botany ..	II	10.30	..	10.30	9.30	..	..
,, (Practical)	IIA	..	..	..	..	..	..
Geology, Edmund St.	I	10.30	..	..	..	..	..
,, Edgbaston	I	..	9.30	..	9.30	..	..
,, Edmund St.	IIA	..	10.30	..	10.30	..	..
,, Edgbaston	IIA	..	..	10.30	..	10.30	..
,, (Field work)	..	..	..	11.30	..	11.30	..
Metallurgy ..	III.	..					
,, (Field work)	III.	4.0†	11.30	..	11.30	..	..
Education ..	III	..	..	12.0	..	10.30	10.0†
,, (Field work)	IA	2.30	..	..	2.30	..	..
,, (Field work)	IB	..	..	..	4.30	4.30	..
German (Science Course)	IIA	4.30	..	..	..	4.30	..

† Winter and Spring Terms.

‡ Summer Term.

|| Spring and Summer Terms

\* Tutorial.

## FIRST YEAR ARTS COURSES.

SUBJECT	Course	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Latin . . . . .	I.	2.30	..	..	2.30	..	..
„ (Composition)	{ IA IB	.. ..	2.30 3.30	.. ..	.. 3.30	.. 3.30	.. ..
Greek . . . . .	{ IA IB	.. 3.30	4.30 ..	3.30 ..	.. 3.30	4.30 3.30	.. ..
English Literature . . . . .	IA	10.30	11.30	..	..	..	..
English Language . . . . .	IB	..	..	..	..	9.30	..
French . . . . .	IA	3.30	3.30	..	4.30	..	..
French . . . . .	IB	..	4.30	..	..	..	..
German . . . . .	I.	11.30	..	..	3.30	3.30	..
Spanish . . . . .	I.	..	10.30	..	10.30	..	10.30
Italian . . . . .	I.	..	3.30	..	3.30	..	..
Pure Mathematics . . . . .	I.	12.30	12.30	..	12.30	12.30	..
Geography . . . . .	I.				<i>By arrangement.</i>		
Logic . . . . .	I.				<i>By arrangement.</i>		
History, General European History	I.	..	10.30	10.30	..	10.30	..

## SECOND YEAR ARTS COURSES.

SUBJECT.	Course	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Latin .. ..	II	..	3.30	..	3.30	2.30	..
Greek ..	{ IIA IIB	4.30 2.30	.. 3.30	4.30 ..	.. 4.30	2.30 ..	..
English .. ..		IIA	..	11.30	..	11.30	..
" .. ..	IIB	..	..	..	..	11.30	..
" Informal Instruction ..	..	..	{ 9.30 to 11.30	..	..	..	..
French .. ..	II	10.30	..	9.30	9.30	..	..
German .. ..	II	3.30	..	..	3.30	4.30	..
Spanish .. ..	II	..	11.30	..	11.30	..	11.30
Italian .. ..	II	..	2.30	..	2.30	..	..
Pure Mathematics ..	II	..	10.30	..	..	10.30	10.30
Applied Mathematics ..	I	..	9.30	..	..	9.30	9.30
Mental Philosophy ..	II				<i>By arrangement.</i>		
History .. ..	II	4.30	12.30	..	12.30	..	..
" .. ..	III	12.30	3.30	..	3.30	10.30	..
Education .. ..	IA	2.30	..	..	2.30	..	..
" .. ..	IB	..	..	..	4.30	4.30	..

## THIRD AND FOURTH YEARS' ARTS COURSES.

SUBJECT.	Course	Mon.	Tues.	Wed.	Thurs.	Fri.
Latin .. .. .. ..	III	..	2.30	..	2.30	3.30
" .. .. .. ..	IV	3.30	3.30	..	3.30	3.30
Greek .. .. .. ..	III	..	2.30	..	2.30	..
" .. .. .. ..	IV				<i>By arrangement.</i>	
English .. .. .. ..	IIIA	..	11.30	..	11.30	..
" .. .. .. ..	IIIB	..	..	10.30	..	..
" Informal Instruction .. .. .. ..		..	..	..	{ 9.30 to 11.30	..
" .. .. .. ..	IV	11.30	<i>and by arrangement.</i>			
French .. .. .. ..	III	2.30	..	12.30	10.30	..
" .. .. .. ..		..	..	12.30	11.30	..
" .. .. .. ..		..	2.30	..	2.30	..
" .. .. .. ..	IV	..	3.30	..	3.30	..
German .. .. .. ..	III	4.30	4.30	..	4.30	..
" .. .. .. ..		4.30	4.30	..	4.30	..
" .. .. .. ..	IV	10.30	10.30	..	3.30	..
" .. .. .. ..		11.30	3.30	..	5.30	..
Spanish .. .. .. ..	III	12.30	4.30	..	..	..
" .. .. .. ..		..	12.30	..	12.30	..
Italian .. .. .. ..	III				<i>By arrangement.</i>	
Philosophy .. .. .. ..	III				<i>By arrangement.</i>	
" .. .. .. ..	IV				<i>By arrangement.</i>	
History .. .. .. ..	II	4.30	12.30	..	12.30	..
" .. .. .. ..	III	12.30	3.30	..	3.30	10.30
" .. .. .. ..	IV	1.30	1.30	..	..	1.30
" .. .. .. ..	M.A.	12.30	..	..	12.30	..
Education .. .. .. ..	IIA	4.30	..	..	..	4.30
Mathematics .. .. .. ..	III	..	10.30	11.30	10.30	..

# FACULTY OF SCIENCE.

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## Syllabuses of Courses.

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### MATHEMATICS.

*Mason Professor* : R. S. HEATH, M.Sc. ; M.A. (Cantab.), D.Sc. (Lond.), late Fellow of Trinity College, Cambridge.

*Lecturer* : C. T. PREECE, M.A. (Cantab.).

*Assistant Lecturers* :

- A. J. KENNY, M.A. (Dublin).
  - A. WALMSLEY, B.A. (Cantab.)
- 

#### Pure Mathematics.

##### Course I.

Mondays, Tuesdays, Thursdays and Fridays at 11-30, at Edgbaston (Dr. Heath) ; also at Edmund Street at 12-30 (Mr. Preece and Mr. Kenny).

**FEE** :—£4 4s.

**ALGEBRA.**—Elementary properties of surds and imaginaries ; simultaneous quadratics and equations like quadratics ; theory of indices ; theory and practical applications of logarithms ; permutations and combinations ; arithmetical and geometrical progressions, and other simple series ; the binomial theorem for a positive integral exponent.

**TRIGONOMETRY.**—Trigonometrical ratios of acute angles; solution of right-angled triangles, and simple problems of heights and distances; circular measure of angles; length of arcs of circles; angles of any magnitude and sign; trigonometrical ratios of obtuse angles; sine, cosine and tangent of the sum and difference of angles; formulæ for the ratios of the double angle, triple angle, and the half angle; transformation of sums and differences of sines and cosines into products, and vice-versa; properties of triangles; solution of triangles; problems on heights and distances; the chief circles related to a triangle; regular polygons; areas of circles, sectors, and segments.

**GEOMETRY.**—The substance of Euclid, Book XI., 1—21, together with properties, areas of surface, and volumes of polyhedra, cylinders, cones, and spheres.

**ELEMENTARY ANALYTICAL GEOMETRY.**—Rectangular co-ordinates; distance between two points; areas of triangles and polygons; the equations of loci; intersection of loci; the equation of the line joining two points; the equation of the circle.

## Course II.

Mondays, Wednesdays, and Fridays, at 10.30 at Edgbaston (Dr. Heath and Mr. Kenny); also Tuesdays, Fridays, and Saturdays, 10.30 at Edmund Street (Mr. Preece).

FEE :—£4 4s.

**ALGEBRA.**—Theory of quadratic functions and quadratics, their graphs and maxima and minima values; the remainder and factor theorems of rational functions; theory of rational and partial fractions; the convergence and properties of the binomial, exponential and logarithmic series.

**TRIGONOMETRY.**—Inverse notation; graphs of the trigonometrical functions; hyperbolic functions.

**SOLID GEOMETRY.**—The elementary properties of sections of a cone; rectangular co-ordinates in three dimensions; the equation of surfaces; cylindrical surfaces; the equations of planes and lines; the equation of the sphere.

**DIFFERENTIAL CALCULUS.**—Methods of differentiation ; Taylor's and MacLaurin's theorems ; theory of maxima and minima.

**INTEGRAL CALCULUS.**—Methods of integration ; calculation of curve lengths, areas and volumes by single integration.

### Course III.

Mondays, Wednesdays, and Fridays, at 9.30 at Edgbaston ; also on Tuesdays and Thursdays at 10.30, and Wednesdays at 11.30, at Edmund Street (Mr. Kenny).

FEE :—£4 4s.

**ANALYTICAL GEOMETRY** up to the elementary properties of the conic sections.

**DIFFERENTIAL CALCULUS.**—Tangents, normals, asymptotes, singularities of curves ; tracing of curves ; properties of special curves (including sine-curve, logarithmic curve, cycloids and catenary).

**INTEGRAL CALCULUS.**—Formulæ of reduction ; differentiation and integration of an integral with regard to constants : properties of special curves ; double and triple integration.

**DIFFERENTIAL EQUATIONS.**—Standard forms ; singular solutions ; linear and homogeneous equations with constant coefficients ; special equations commonly occurring in dynamical and physical problems.

### Course IV.

Lecture Days by arrangement

FEE :—£4 4s.

**ANALYTICAL GEOMETRY** of three dimensions.

**THEORY OF EQUATIONS.**

**ELEMENTARY THEORY OF FUNCTIONS OF A REAL VARIABLE.**  
**FOURIER'S SERIES.**

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## Applied Mathematics.

### Course I.

Mondays, Wednesdays and Fridays, at 9.30 at Edgbaston (Dr. Heath) ; or Mondays, Wednesdays and Thursdays, at 9.30, at Edgbaston (Mr. Preece) ;

or Tuesdays, Fridays and Saturdays, at 9.30, at Edmund Street (Mr. Preece).

FEE—£4 4s.

**STATICS.**—The theory of the composition and resolution of forces; the theory of moments; parallel forces and couples; equilibrium of bodies under the action of forces in one plane; force-diagrams and link-polygons; centres of gravity; the simpler machines, balances; pulleys, screw-jacks, &c.; friction and its effects in the working of machines; theory of work and efficiency of machines; statics of jointed frame-works.

**DYNAMICS.**—Definition, measurement, and properties of velocities and accelerations; measurement of momentum and force; work and energy; motion of a body under the action of a force which is constant in magnitude and direction, including the motion of projectiles; theory of impacts; uniform circular motion; harmonic oscillations; the simple pendulum; theory of dimensions of dynamical quantities; change of units.

**HYDROSTATICS.**—Equilibrium of liquids under the action of gravity; pressures of liquids on plane areas and on solid bodies partially or wholly immersed; Boyle's and Charles' laws of gases; hydrostatic machines, such as presses, barometers, pumps, &c.

## Course II.

Mondays, Wednesdays and Fridays, at 10.30, at Edgbaston (Mr. Walmsley).

FEE—£4 4s.

**STATICS.**—Continuation of the subjects of the Course I and more difficult applications; application of integral calculus to the determination of centres of gravities; stability; equilibrium of strings; small curvatures of flexible beams.

**DYNAMICS OF A PARTICLE.**—Application of differential and integral calculus to the measurement of velocities and accelerations; motion of chains under the action of gravity; motion under central forces; motions of particles on fixed curves.

**RIGID DYNAMICS.**—Moments of inertia; motion of a rigid body about a fixed axis; theory of impacts and centres of percus-

sion ; theory of angular momentum and kinetic energy ; motions of bodies in two dimensions under the action of given forces.

**HYDROSTATICS.**—Metacentres, stability and small oscillations of floating bodies.

For Vacation Reading, see page 492.

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### *REQUIREMENTS FOR DEGREES*

*Intermediate Examinations in Science and Arts :—*

Course I.

*B.Sc. Degree :—*

- (i) Mathematics as a Principal Subject :—

Courses II and III in Pure and Courses I and II in Applied Mathematics.

- (ii) Mathematics as a Subsidiary Subject :—

One of the following combinations :

(a) Courses II and III in Pure Mathematics.

(b) Courses I and II in Applied Mathematics (for students who know sufficient Pure Mathematics).

(c) Course II in Pure and Course I in Applied Mathematics.

*B.A. Degree :—*

- (i) (When Mathematics is taken for two years) The same combinations as for Subsidiary Mathematics for B.Sc. Degree.

- (ii) (When taken for one year only.) Course II in Pure Mathematics or Course I in Applied Mathematics.
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## MATHEMATICS.

## TIME TABLE.

COURSE.	LECTURER.	PLACE OF LECTURE.	MON.	TUES.	WED.	THUR.	FRI.	SAT.
Pure I. ..	Dr. Heath Mr. Walmsley } Mr. Preece } Mr. Kenny }	Edgbaston .. Edmund Street .	11.30 ..	11.30 ..	..	11.30 ..	11.30 ..	..
Pure II. ..	Dr. Heath ..	Edgbaston ..	10.30 ..	10.30 ..	..	10.30 ..	10.30 ..	..
	Mr. Preece ..	Edmund Street ..	10.30 ..	10.30 ..	..	10.30 ..	10.30 ..	..
	Mr. Kenny ..	Edgbaston ..	10.30 ..	10.30 ..	..	10.30 ..	10.30 ..	..
Pure III. ..	Mr. Kenny ..	Edgbaston ..	9.30 ..	9.30 ..	..	9.30 ..	9.30 ..	..
	" "	Edmund Street ..	10.30 ..	11.30 ..	10.30 ..	..	..	..
	Dr. Heath ..	Edgbaston ..	9.30 ..	9.30 ..	..	9.30 ..	9.30 ..	..
Applied I. ..	Mr. Preece {	Edgbaston .. Edmund Street ..	9.30 .. 9.30 ..	9.30 .. 9.30 ..	..	9.30 .. ..	9.30 .. 9.30 ..	..
	Mr. Walmsley ..	Edgbaston ..	10.30 ..	10.30 ..	..	10.30 ..	10.30 ..	..
Applied Special ..	Mr. Walmsley ..	Edgbaston ..	9.30 ..	9.30 ..	9.30 ..	9.30 ..	9.30 ..	..

## PHYSICS.

THE UNIVERSITY, EDGBASTON.

*Poynting Professor* : (Vacant).

*Lecturer* : G. A. SHAKESPEAR, D.Sc.; M.A. (Cantab.), B.A., B.Sc. (Lond.).

*Assistant* | G. BARLOW, D.Sc.; D.Sc. (Lond. and Wales).  
| H. B. KEENE, D.Sc.

*Lecturers* : | JOHN S. ANDERSON, M.A., B.Sc. (Glas.), Ph.D. (Gottingen).

*Special Lecturer on Experimental Physics* :

G. A. SHAKESPEAR, D.Sc.; M.A., B.Sc.

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### THE POYNTING CHAIR OF PHYSICS.

This Chair has been endowed and named as a memorial to the late Professor John Henry Poynting. The endowment was provided by Sir George Kenrick, who, in July, 1914, handed over to the University securities representing a sum of £18,000, the income of which is to be used "exclusively for the stipend of the Professor and for objects "intimately connected with the Chair." The annual income is £900.

### INTRODUCTION.

All First Year Undergraduates in Pure Science, in Applied Science (including Engineering, Metallurgy, and Mining) and in Medicine, are required to take Course I, which includes three lectures and two hours laboratory weekly.

Undergraduates who, having passed the Intermediate Examination in Science, select Physics as a subject for their degree, may take it as a Single Subsidiary, as a Double Subsidiary, or as a Principal Subject. The following are the courses in the different cases :—

*Single Subsidiary* : Course II, which includes three lectures weekly, and six hours laboratory weekly for one session.

*Double Subsidiary* : Course II and six hours laboratory weekly in the second year. Course III, which includes three lectures weekly, and six hours laboratory weekly in the third year.

*Principal* : Course II and nine hours laboratory weekly in the second year. Course III and twelve hours laboratory weekly in the third year.

All Second Year Undergraduates in Engineering take the lectures in Course II. Laboratory work is voluntary.

The lectures and laboratory are open to all students who are qualified to take them, whether they are Undergraduates or not.

### Course I.

#### DR. SHAKESPEAR.

For First Year Undergraduates in Pure Science, Applied Science and Medicine.

*Lecture Hours*.—Mondays, Wednesdays, and Thursdays, 10.30.

*Practical Class*.—Mondays, 11.30 to 1.30, or 2.30 to 4.30 ; or Fridays, 2.30 to 4.30.

For Vacation Reading see page 492.

FEE :—£5 15s. 6d.

The lectures will be on such parts of the following syllabus as can be dealt with in the time.

Position, Velocity and Acceleration always relative to a standard. Effect of change of standard. Resolution and Composition of Velocities and Accelerations. Mass. Uniform Motion in a circle. Conical Pendulum. Determination of  $g$ . Gravitation. Dimensions and Mass of the Earth.

**PROPERTIES OF MATTER**.—*Solids* : Sticking and sliding friction. Strains and Stresses. Bulk Strain and Shear Strain. Various kinds of permanent change of shape and rupture. Crystalline and Amorphous Solids. *Liquids* : Viscosity. Compressibility. Surface Tension. *Gases* : Compressibility. Viscosity. Kinetic Theory of Matter. Diffusion. Solution. Osmotic Pressure.

**HEAT.**—Temperature. Mercury in-glass thermometer. Determinations of high and low temperatures. Expansion of solids and liquids. Circulation and Convection in Liquids. Expansion of gases at constant pressure and increase of pressure at constant volume. Gas thermometer. Circulation and Convection in gases. Movements of the Atmosphere. Quantity of Heat. Specific Heat and simple methods of measuring it. Conduction of Heat. Conductivity. Heat a form of Energy. The forms of Energy and their transformations according to fixed rates of exchange. The Conservation of Energy. Methods of determining the Mechanical Equivalent of Heat. The nature of Heat on the Kinetic Theory of Matter. Limitation in the amount of heat which can be transformed to work. Change of State. Latent Heat. Liquid Vapour Change. Evaporation. Boiling. Vapour Pressure. Dependence of boiling point on Pressure, and explanation. Modes of measuring Vapour Pressure. Explanation of Vapour Pressure on the Kinetic Theory. Water Vapour in the Atmosphere. Hygrometers. Cloud. Fog. Dew. Solid-Liquid Change. Melting Point. Change of volume on Melting. Effect of Pressure on Melting Point. Regelation. Radiation. High and Low Radiating and Absorbing Powers. Comparison of properties of radiation from hot bodies and properties of light. Identification. The Spectrum. Energy in the Spectrum. Substances absorb the radiations which they can emit. Dark lines in Solar and Stellar Spectra. The Fourth Power Law.

**LIGHT.**—Light a form of Energy. Rectilinear Propagation. Shadows. Eclipses. Inverse Square Law. Simple Photometers. Reflection. Refraction and Dispersion. Velocity of Light. Light a form of Wave Motion. Illustrations of interference. The Diffraction Grating. Polarisation of Light. Mirrors. Prisms. Lenses. The Eye. Simple forms of Telescope and Microscope.

**SOUND.**—Sound arises from vibrating sources which send out longitudinal waves in air. Characteristics of the waves, corresponding to Loudness, Pitch, and Quality. Velocity of Sound in air, and other media. Determinations of Frequency. Resonance. Its use to analyse sounds. Harmonics and Upper Partials. Quality. Transverse Vibrations of Strings. Vibrations of air in Pipes. Other vibrating sources. Beats. Concord and Discord. Combination Tones.

**MAGNETISM.**—Properties of Magnets. The two poles, their equality and inseparability. Magnetisation by Induction. Methods of making Magnets. Inverse Square Law. Magnetic Fields and Lines of Force. Strength of

Poles and Moments of Magnets. The Earth as a Magnet. Declination, Dip, and Intensity. Magnetic Properties of different substances. Temperature and Magnetic Qualities.

**ELECTRICITY.**—The two kinds of Electrification and simple modes of producing them. Conductors and Insulators. The Gold Leaf Electroscope. Electrification by Induction. Frictional Electrical Machines. The Electrophorus. The Wimshurst Machine. The Leyden Jar. Production and Disappearance of the two Electrifications, always in equal quantities. The Electric Field considered as the seat of Electric Strain, Electric Forces, and Electric Energy, respectively. The Inverse Square Law. The Unit of Charge. Potential, Capacity, and Energy of Charge. Electrometers. The effect of the medium. Specific Inductive Capacity.

**ELECTRO-MAGNETISM.**—Electric Discharge and the Magnetic Effects accompanying it. Electro-magnetic Waves. Electric Current. Voltaic and Storage Cells. The Magnetic properties of the Current Circuit. The Ampère. Galvanometers and Ampère Meters. The Forces on Current Circuits in a Magnetic Field. Electric Motors. Ohm's Law. Resistance. The Heat developed in the Circuit. Joule's Law. The Ohm. The Volt. Electrolysis. Electro Chemical equivalents. Thermo-electricity. The Induction of Currents. Lenz's Law and Faraday's Law. The Dynamo. The Induction Coil. The Transformer.

### *Text Books.*

DUFF, *Text-book of Physics*,  
or some of the following :—

D. E. JONES, *Lessons in Heat and Light*.

STEWART AND SATTERLY, *Text Book of Heat*.

EDSER, *Heat for Advanced Students*.

GLAZEBROOK, *Light*.

EDSER, *Light for Students*.

CATCHPOOL, *Text-book of Sound*.

HADLEY, *Magnetism and Electricity for Students*.

DAVIDGE AND HUTCHINSON, *Technical Electricity*.

**NOTE.**—Every member of the Class is required to have a slide rule for calculations. Slide Rules, price from 3s. 6d. each, may be obtained in the Laboratory.

### **Course II.**

Lectures on Elementary Mathematical Physics for all Undergraduates taking Physics as a subject for a degree, and for Second Year Undergraduates in Engineering.

*Lecture Hours.*—Mondays, Wednesdays, and Fridays, at 11.30.

FEE for Lectures :—£3 13s. 6d.

*Laboratory Hours.*—Six hours weekly if Physics is a Subsidiary Subject, nine hours weekly if it is a Principal Subject, at times to be arranged.

FEE :—Six hours weekly, £6 6s.; nine hours weekly, £7 17s. 6d.

For Vacation Reading see page 492.

The lectures will be on such parts of the following syllabus as can be dealt with in the time. The laboratory work extends over the whole range.

**MECHANICS.**—Simple Harmonic Motion. Simple Pendulum. Motion of a body round a fixed Axis. Compound Pendulum. Methods of determining relative and absolute values of  $g$ . Gravitation. Methods of determining G.

**PROPERTIES OF MATTER.**—*Solids* : Friction. Moduli of Elasticity and methods of determining them.—*Liquids* : Viscosity. Bulk Modulus of Elasticity. Surface Tension. *Gases* : Viscosity. Compressibility. Kinetic Theory of Gases. Molecular Dimensions.

**MAGNETISM AND ELECTRICITY.**—General propositions with regard to an inverse square field of force. *Magnetism* : Magnetic Measurements. The Earth's Field. Paramagnetism and Diamagnetism. Theory of the Magnetic Field. *Electricity* : Theory of the Electric Field. Electric Measurements. *Electro-Magnetism* : Electric Discharge. Magnetic Properties of Current Circuits. Heating Effects. Chemical Effects. Thermo-electricity. Current Induction. Electro-magnetic measurements. Theory of the Electro-magnetic Field.

**OPTICS.**—In the Spring Term all second year laboratory students will be expected to read the Geometrical Optics in Edser's *Light*, and to perform a series of illustrative experiments in the laboratory.

### Text Books.

JACKSON AND ROBERTS, *A First Dynamics*.

EDSER, *General Physics*.

POYNTING AND THOMSON, *Properties of Matter*.

POYNTING AND THOMSON, *Electricity and Magnetism*.

EDSER, *Light for Students*.

FOSTER AND PORTER, *Electricity and Magnetism*.

WATSON, *Practical Physics*, as a manual for the laboratory Course.

**Course III.**

**DR. BARLOW AND MR. KEENE.**

Lectures during the Winter and Spring Terms on any parts of the syllabus of Course II not dealt with in the previous Session and on the syllabus below. The work is more advanced than that of Course II. Members of the Class will be required to write essays on Physical Subjects, to be read to and discussed by the Class. The laboratory work extends over the whole range.

*Lecture Hours.*—Tuesdays, Thursdays, and Saturdays, at 9.30.

*FEE* :—£3 3s.

*Laboratory Hours.*—Six hours weekly if Physics is a Double Subsidiary Subject, twelve hours weekly if it is a Principal Subject, at times to be arranged.

*FEES* :—Six hours weekly, £6 6s. ; twelve hours weekly, £9 9s.

**MECHANICS.**—Some problems in Mechanics.

**ELECTRO-MAGNETISM.**—Continuation and amplification of the Syllabus in Course II.

**SOUND.**—Nature of Sound Waves in Air. Velocity of Sound. Measurements of Frequency. Forced Vibrations. Analysis of Waves. Strings. Pipes. Maintenance of Vibrations. Interference of Sound Waves. Beats. Concord and Discord. Combination Tones.

**LIGHT.**—Systems of thick lenses. Wave Theory. Interference. Diffraction. Polarisation by Reflection and Refraction. General Account of Polarisation by Crystals. Circular and Elliptic Polarisation. Rotation of Plane of Polarisation. Polarimeters.

**HEAT.**—The Laws of Thermodynamics. Absolute Scale of Temperature. Volume-pressure and Entropy-temperature Diagrams and their use. Solution. Osmotic Pressure. Exact Measurements in Heat.

**SPECTROSCOPY.**—Early Spectrum observations. Kirchoff's Law. Kinds of spectra. Nature of lines in spectra. The Prism. Plane diffraction gratings. Concave gratings. Spectrographs. Echelon gratings. Series of lines. Methods of producing Spectra. Infra-red spectrum. Zeeman effect. Doppler's Principle. The Sun. The Spectro-heliograph. Stellar spectra.

**RADIO-ACTIVITY.**—Cathode Rays. X Rays. General Properties of Radio-active elements. Theory of Ionisation of Gases. The charge and nature of the  $\alpha$  particle. The

absorption, and range of the  $\alpha$  particle.  $\beta$  and  $\gamma$  Rays. The disintegration theory. Properties of emanations and active deposits. Methods of measuring life periods of the radio-active elements. The age of the earth.

### *Text Books.*

THOMSON, *Elements of Electricity and Magnetism*.

THOMSON, *The Corpuscular Theory of Matter*.

POYNTING AND THOMSON, *Sound*.

POYNTING AND THOMSON, *Heat*.

POYNTING AND THOMSON, *Electricity and Magnetism*.

EDSER, *Light for Students*.

BALY, *Spectroscopy*.

NEWALL, *The Spectroscope and its Work*.

RUTHERFORD, *Radio active-substances and their Radiations*.

MAKOWER AND GEIGER, *Practical Measurements in Radio-activity*.

### RESEARCH.

The Laboratory is open for purposes of Research or for Special Courses, from 10 to 1 and 2 to 5 daily, except Saturdays.

FEES :—Six hours weekly, £6 6s. ; nine hours, £7 17s. 6d. Twelve hours, £9 9s. Each succeeding six hours, £2 2s.

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### *M.Sc. DEGREE IN PHYSICS.*

For the general regulations, see page 186. Candidates are required to attend the Conference and to present evidence from time to time that they are studying Physical work other than that relating to their own research.

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### CONFERENCE ON RECENT ADVANCES IN PHYSICS.

A Conference will be held on Thursdays, at 5-30, for members of the Staff, Graduates, and Advanced Students, at which recent work will be described and discussed.

Those who wish to join the Conference should consult the Professor.

*ELEMENTARY COURSE ON EXPERIMENTAL PHYSICS.*

A course of lectures especially designed for Medical and Dental candidates for the Conjoint Board Examination is given during the Winter and Spring Terms. (*See Medical Syllabus.*)

*Lecture Hours.*—Tuesdays and Thursdays, 10.30.

*Laboratory Hours.*—Friday, 10—1 ; 2—5.

FEE :—£5 5s.

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*COURSE ON SOUND.*

DR. SHAKESPEAR.

Especially for students in Music. See page 426.

TIME TABLE.

PHYSICS.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
Course I.—Lecture	10.30	..	10.30	10.30	..	..
Laboratory	{ 11.30 or 2.30 }	—	or	—	2.30	..
Course II.—Lecture	11.30	.	11.30	..	11.30	..
Laboratory				<i>By arrangement.</i>		
Course III.—Lecture	..	9.30	..	9.30	..	9.30
Laboratory				<i>By arrangement.</i>		
Conference	..	..	..	5.30	..	..
Elementary Course						
Lecture	..	10.30	..	10.30	..	..
Laboratory	..	..	..	..	10—1 and 2—5	..

## CHEMISTRY.

THE UNIVERSITY, EDGBASTON.

*Mason Professor :* PERCY F. FRANKLAND, M.Sc. ; Ph.D. (Würz.), LL.D. (St. Andrews), Sc.D. (Dub.), F.R.S.

*Assistant Lecturers :* { HAMILTON McCOMBIE, D.Sc. ; M.A. (Aber.),  
B.Sc. (Lond.), Ph. D. (Strass.), A.R.C.S.  
F.I.C.  
C. K. TINKLER, D.Sc.; B. Sc.(Lond. and Wales)  
J. E. COATES, M.Sc. (Wales).

*Assistant Lecturers and Demonstrators :* { E. P. FRANKLAND, M.Sc. ; B.A.  
(Cantab.), Ph.D. (Würz.)  
FREDERICK CHALLENGER, B.Sc. (Lond.),  
Ph.D. (Göttingen), F.I.C.

*Special Lecturer on Physical Chemistry :*  
J. E. COATES, M.Sc.

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The new Chemical Department inaugurated in 1909 at the University, Edgbaston, is housed in a separate building, consisting of four floors. There is a large lecture theatre, capable of seating 300 persons, a smaller lecture room to seat 60; a Junior Laboratory with nearly 100 working benches, in addition to special laboratories for Organic, Physical, Electro-chemical, Analytical, and Public Health Chemistry, also Research Laboratories, Operation Rooms, Libraries, Dark Rooms for Spectroscopic, Polarimetric, Photometric, and Photographic purposes, etc., etc.

A special feature in the department is the electrical installation, which includes direct and alternating current dynamos, a storage battery of 48 cells, and a network of wires permitting currents of very varied density and voltage being obtained in almost every room in the building.

**Course I.****PROFESSOR FRANKLAND.**

A. This part of the course is arranged (1) to give a full exposition of the general principles of Chemical Science, (2) for the systematic study of the properties of the more important elements and their compounds, and (3) to indicate some of the chief applications of Chemistry in the Arts and Manufactures.

Three hours weekly during the Winter and Spring Terms. Further meetings of the class are specially arranged for tutorial work. Attendance at this tutorial class is compulsory, as is the performance of the exercises set by the Professor.

*Lecture Hours.*—Mondays, Wednesdays, and Thursdays, at 9.30.

The tutorial classes are held at hours shown in the time table, page 240.

**FEE :—£4 4s.**

For the guidance of students the following Syllabus of the requirements for the Intermediate Examination in Inorganic Chemistry is appended :—

**I. GENERAL.**

Nature of chemical change. Elements and compounds. Chemical affinity and the modes of chemical action. Regularities exhibited in the formation of compounds. Indestructibility of matter. Laws of constant, multiple, and equivalent proportions. Atomic theory. States of matter. Properties of gases. Kinetic Theory. Molecular Theory. Avogadro's hypothesis. Atomic and molecular weights. Vapour Density. Isomorphism, atomic and molecular heats.

Chemical nomenclature, formulæ, equations. Valency. Solution. Osmotic pressure. Electrolysis. Ionic Theory. Acids, bases, and salts.

Thermo-chemistry. Energy, its transformation and conservation. Liquefaction of gases.

**II. SPECIAL.**

Hydrogen. Oxygen. Ozone. Allotropy. Water; physical properties, natural waters. Hydrogen peroxide. Nit-

rogen ; circulation of, in nature. The Atmosphere. Compounds of nitrogen with hydrogen; oxides of nitrogen; oxyacids of nitrogen; halogen compounds of nitrogen.

Carbon, its circulation in nature. Coal. Oxides of carbon. Hydrocarbons; methane, ethylene, acetylene. Combustion, flame, and luminosity.

Coal-gas, producer-gas, water-gas, oil-gas. Artificial illumination.

Chlorine and the halogens. Their compounds with hydrogen, their oxides, and oxyacids.

Sulphur; compounds with oxygen, hydrogen, and carbon, oxyacids of sulphur.

Phosphorus; compounds with hydrogen, and oxygen; oxyacids of phosphorus. Arsenic, antimony, and bismuth; comparison of their properties and compounds with those of phosphorus and nitrogen.

Boron and silicon, and their more important compounds  
Classification of the Elements. Periodic Law.

#### METALS.

Occurrence, modes of isolation, and general properties of the following metals, and their more important compounds :—Sodium, potassium, barium, strontium, calcium, magnesium, iron, chromium, aluminium, zinc, manganese, nickel, cobalt, mercury, copper, bismuth, cadmium, lead, tin, silver, and gold.

*Text Books.*—Kipping and Perkin's Inorganic Chemistry.  
Senter's Inorganic Chemistry.  
Alex. Smith's General Inorganic Chemistry.  
Holleman's Inorganic Chemistry.

B. This part of the course includes an introduction to the study of Organic Chemistry, with a description of the properties, relations, and methods of preparation of the more important groups of Carbon-compounds.

Three hours weekly during the Summer Term.

*Lecture Hours.*—Mondays, Wednesdays, and Thursdays at 9.30.

*FEE :—£1 11s. 6d.*

For the guidance of students the following Syllabus of the requirements for the Intermediate Examination in Organic Chemistry is appended :—

## III. ORGANIC CHEMISTRY.

DR. E. P. FRANKLAND.

Analysis of organic compounds. Formulæ. Isomerism.  
Structure.

Hydrocarbons. Paraffins, Ethylene, Acetylene. Halogen derivatives. Chloroform. Iodoform.

Alcohols. Fermentation. Ether. Aldehydes. Chloral. Fatty Acids. Fats, Soap, and Saponification. Glycerine. Glycol. Oxalic acid. Succinic acid. Tartaric acid. Lactic acid. Citric acid.

Carbohydrates.

Cyanogen-compounds and Amines.

Urea, Glycocoll, Uric Acid.

Aromatic compounds. Benzene. Phenol, Aniline, Benzoic acid, Salicylic acid.

*Text Books.*—Remsen's Organic Chemistry.

Walker's Medical Organic Chemistry.

In connection with these courses, IA and IB, tutorial classes will be held during the Session on—

Tuesdays, 10.30 (Engineers and Miners) ;

Mondays, 2.0 (all other students).

Attendance at this class is compulsory, except in the case of students who have been exempted by the Professor.

No fee.

A special class on the Metals and Theoretical Foundations of Analytical Chemistry is held during the Session on Wednesdays at 11.30 a.m.

Attendance is compulsory for first year students.

No fee.

## Course II.

PROFESSOR FRANKLAND.

A. *Advanced Organic Chemistry.*—This course extends over two years, and is divided into two parts :—

- (i) Carbon-compounds of the Fatty Series ;
- (ii) Aromatic and other Cylic Compounds.

*Text Books.*—Holleman's Organic Chemistry.

Wade's Organic Chemistry.

Only one of these parts will be taken in each year. The class meets on Tuesdays and Wednesdays at 4 p.m. during the Winter and Spring Terms.

FEE for each part :—£2 2s.

## DR. TINKLER.

B. *Advanced Inorganic Chemistry*.—This course is devoted to the consideration of special branches of Inorganic Chemistry, and direction is also given as to the private reading which should be pursued by students.

The class meets on Saturdays, at 9.30 a.m., during the Session

FEE :—£1 1s.

## Course III.

## PROFESSOR FRANKLAND.

A. *Advanced Organic Chemistry*.—Part (i) or (ii) of Course II A.

The Class meets on Tuesdays and Wednesdays at 4 p.m. during the Winter and Spring Terms.

FEE :—£2 2s.

## MR. COATES.

B. *Physical Chemistry*, Course I.—This Course is designed to give a general account of the elements of Physical Chemistry. The class meets at 4 p.m. on Mondays and Thursdays during the Winter and Spring Terms.

FEE :—£2 2s.

## Course IV.

## DR. McCOMBIE AND OTHERS.

A. *Advanced Organic Chemistry*.—Lectures on special subjects attracting attention at the time will be delivered during the Winter, Spring, and Summer Terms.

The class meets on Fridays at 10 a.m.

FEE :—£1 1s.

*A Colloquium* for the discussion of recent advances in Chemistry is held on Thursdays at 10 a.m. Free to Honours and Research students.

## MR COATES.

B. *Physical Chemistry*, Course II.—In this Course certain branches of the subject will be treated more fully than in Course I. The Class meets on Tuesdays at 10 a.m. during the Winter, Spring, and Summer Terms.

FEE :—£1 1s.

In connection with this course a knowledge of the elements of the differential and integral calculus is necessary.

*ELECTRO-CHEMISTRY.*

MR. COATES.

A course on Electro-Chemistry will be held during the Spring Term, in which the following subjects will be studied : (a) the electrolytic preparation of inorganic and organic substances ; (b) electrolysis of fused electrolytes ; (c) electro-thermal reactions and the use of electric furnaces. In connection with this course arrangements will be made for practical work and for demonstrations.

The course will form part of the Honours Course in Physical Chemistry (Course IV B), but will be open also to students not taking the Honours Course.

FEE (for students not taking the whole of Course IV B) :  
10s. 6d.

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**Practical Chemistry.****I.**

Not less than nine hours weekly during the three terms must be devoted to Laboratory work.

The Course will include :—

Preparation of pure substances, gaseous, liquid and solid.

Experiments illustrating the laws of combination.

Simple qualitative analysis, simple gravimetric and volumetric determinations.

**II.**

Not less than fifteen hours weekly during the three terms must be devoted to Laboratory work.

The Course will include :—

Advanced qualitative and quantitative analysis.  
Simple organic preparations.

## III.

Not less than fifteen hours weekly during the three terms must be devoted to Laboratory work.

The Course will include :—

Gas analysis, molecular weight, and other physical determinations.

Advanced organic preparations and identification of organic compounds.

## IV.

Not less than 24 hours weekly during the three terms must be devoted to Laboratory work.

FEE :—£16 16s. od.

## LABORATORY PRACTICE.

The Laboratory will be open daily from 9-30 to 5, except on Saturdays, when it will be closed at 1 p.m.

Each student will pursue an independent Course of study to be determined after consultation with the Professor. He will be guided in his operations by the Professor or his Assistants.

TEXT BOOKS.—NEWTH'S *Manual of Chemical Analysis, Qualitative and Quantitative* (Longman's); TREADWELL'S *Quantitative Analysis* (Wiley & Sons); SUTTON'S *Volumetric Analysis* (Churchill); COHEN'S *Practical Organic Chemistry*; SUDBOROUGH & JAMES' *Practical Organic Chemistry* (Blackie); MEYER TINGLE'S *Determination of Radicles in Carbon Compounds* (Wiley & Sons); ELB'S *Electrolytic Preparations*; SMITH'S *Electro-chemical Analysis*; FINDLAY'S *Practical Physical Chemistry*; OSTWALD'S *Physical Chemical Measurements*; TINKLER AND CHALLENGER'S *Chemistry of Petroleum and its Substitutes* (Crosby Lockwood.).

FEES :—	All day.	Three hours per day.	Three hours per day; five days a week.	Three hours per day; three days a week.
	Guineas.	Guineas.	Guineas	Guineas.
One Term.. ..	7	4 $\frac{1}{2}$	4	2 $\frac{1}{2}$
Two Terms ..	13	8 $\frac{1}{2}$	7 $\frac{1}{2}$	5
Three Terms ..	18	12	11	6 $\frac{1}{2}$

Each student will be required to provide himself with a set of simple apparatus, the total cost of which need not exceed 30s.

Gas, water, and all ordinary reagents (except methylated spirit, ether, chloroform, silver nitrate, and platinum perchloride) are supplied by the University, and the larger forms of apparatus may be obtained on loan from the Laboratory store, on condition that breakages are made good.

Some of the special chemicals required for organic preparations have to be purchased by the Student.

Some additional Apparatus will also be required by each student on commencing QUANTITATIVE ANALYSIS AND ORGANIC PREPARATIONS.

Special arrangements are made by the Professor for students pursuing Research.

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#### Chemical Library.

The departmental library, adjoining the laboratories, is open for the use of students during working hours, subject to the rules prescribed by the Professor.

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#### University Chemical Society.

The Society meets on alternate Mondays at 5-30 p.m., during the Winter and Spring Terms, for the reading and discussion of papers.

All students are eligible for membership.

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#### EXCURSIONS.

During previous Sessions permission has been obtained to visit some of the great factories in and near Birmingham, in which chemical and metallurgical industries are carried on. Students have thus had most valuable opportunities of gaining a practical acquaintance with some branches

of Applied Science. The privilege thus courteously granted by several manufacturers will, it is hoped, be enjoyed in every future Session. The excursions will be conducted by the Professor.

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For Vacation Reading, see page 493.

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### *REQUIREMENTS FOR DEGREES.*

#### *Intermediate Examination in Science.*

Lectures, Course I (A and B).

Laboratory, Course I.

#### *B.Sc. Degree :—*

(i) Chemistry as a principal subject :

Lectures, Courses II and III.

Laboratory, Courses II and III.

(ii) Chemistry as a subsidiary subject

One of the following combinations—

(a) Lecture Courses II and III in Inorganic and Organic Chemistry, in successive years, with not less than fifteen hours weekly in the Laboratory during one session.

(b) Lecture Courses II and III in Inorganic and Physical Chemistry, with not less than fifteen hours weekly in the Laboratory during three terms.

#### *B.A. Degree :—*

Lecture Course I, with not less than nine hours Laboratory work weekly.

#### *B.Sc. Degree with Honours in Chemistry :—*

Three years' work after the Intermediate Examination are required. The requirements with regard to Subsidiary Subjects are the same as for the ordinary

B.Sc. Degree above, and under ordinary circumstances the examinations in the Subsidiary Subjects should be passed by the end of the second year after Intermediate, leaving the third year entirely free for chemical study alone.

## TIME TABLE.

CHEMISTRY.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
Junior Course for Dental Diploma, Students, etc. ‡	..	11.30	..	11.30	..	..
Course I (A)*	9.30	..	9.30	9.30	..	..
Course I. (A) Tutorial	§2.0	10.30	..	..	..	..
Course I. (Metals, &c)	..	..	11.30	..	..	..
Course I (B). †	9.30	..	9.30	9.30	..	..
Course II. (Org.) *	..	4.0	4.0	..	..	..
„ (Inorg.)	..	..	..	..	..	9.30
Course III. (Org.) *	..	4.0	4.0	..	..	..
„ (Phys.) *	4.0	..	..	4.0	..	..
Course IV. (Org.)	..	..	..	..	10.0	..
„ (Phys.)	..	10.0	..	..	..	..

\*Winter and Spring Terms.      †Summer Term.

§Science and Medical Students.

||Engineering and Mining Students.

‡For Syllabus see Medical Calendar.

*Manufacturers or Managers of Works having vacancies are requested to apply to the Professor.*

## ZOOLOGY AND COMPARATIVE ANATOMY.\*

*Mason Professor and Director of the Research Laboratories :*

F. W. GAMBLE, M.Sc. ; D.Sc. ; F.Z.S. ; F.R.S.

*Lecturer : HAROLD G. JACKSON, M.Sc. (Liverpool).*

All first year undergraduates in medicine and those who take Biology for the intermediate examination are required to attend Course I, which includes two lectures and two hours laboratory weekly during the Winter and Spring Terms, and two hours additional practical work weekly during the Summer Term.

Candidates for the Bachelor's Degree who select Zoology as one of their subjects may take it as a single subsidiary subject, as a double subsidiary one, or as a principal subject, as follows :—

*Single Subsidiary* : Course II, during one year (three hours lectures weekly and six hours laboratory work weekly for one session).

*Double Subsidiary* : Course II, during two years.

*Principal* : Course II during two years, and Course III during the final year. (Three hours lectures weekly ; six hours laboratory during the second year, and nine hours weekly during the third.)

### Course I.

#### *ANIMAL BIOLOGY.*

*Lecture Hours.*—Tuesdays and Fridays, at 12.30, during the Winter and Spring Terms ; 9.30 on the same days during the Summer Term.

*Laboratory.*—Tuesdays, from 2.30 to 4.30 in Winter and Spring Terms ; and on Tuesdays and Fridays at the same time during the Summer Term.

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\* This Department includes a section devoted to Research Work in Agricultural Zoology, for which see page 247.

FEE :—For Lecture and Laboratory courses, £3 3s.  
A course of about fifty lectures on Animal Biology.

- A. The anatomy, elementary physiology, and histology of the various systems of organs in the Frog. Structure of the various elementary tissues of the Frog. The combination of tissues to form organs. Living and non-living matter. Distinctive properties of living matter or protoplasm. Cell-division.
- B. This part of the course will treat of the structure, habits, and life-histories of the following typical animals, viewed from a comparative standpoint :—

*Amœba, Paramecium, Vorticella*, the freshwater Polype (*Hydra*), *Obelia*, the Earthworm (*Lumbricus*), the Crayfish (*Astacus*), the Dog-fish (*Scyllium*), and the Rabbit (*Lepus*).

- C. The concluding lectures of the course will deal with the phenomena of Reproduction. Asexual and Sexual Reproduction. Ova and Spermatozoa. Spermatogenesis. Fertilization and segmentation of the ovum in *Amphioxus* and *Rana*. The origin and fate of the three germinal layers in these Vertebrates and the chief organs to which they give rise. The development and larval history of the frog.
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### Course II.

This Course is taken by those students who have entered for Zoology as a principal subject or as a single or double subsidiary subject.

The course in Zoology for second year students varies in successive years. In 1914-15 the course will cover the chief invertebrates during the Winter and Spring Terms, and the lower vertebrates during the Summer Term.

The course will include a more or less detailed description of the Morphology, Bionomics and Embryology of selected examples of certain of the principal groups of animals, and of the more important modifications of structure which are met within the limits of each group. The Phylogenetic relations of each group will also be discussed, as well as the more elementary facts of Geographical Distribution.

*Lecture Days*.—Mondays, Wednesdays, and Thursdays, at 12.30 during the Winter and Spring Terms; 9.30 during the Summer Term.

*Laboratory Days*.—Mondays, Wednesdays, and Thursdays.

FEE: For Lecture and Laboratory courses, £10 10s.

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### SYLLABUS OF GROUPS AND TYPICAL EXAMPLES.

#### Protozoa.

		EXAMPLES.
(i)	Rhizopoda .....	<i>Amœba, Gromia, Polystomella, Globigerina.</i>
(ii)	Heliozoa .....	<i>Actinophrys.</i>
(iii)	Radiolaria .....	<i>Thalassicolla.</i>
(iv)	Mycetozoa .....	<i>Badhamia.</i>
(v)	Sporozoa .....	<i>Monocystis, Coccidium, Haemamœba.</i>
(vi)	Flagellata .....	<i>Englena, Codosiga, Ceratium, Noctiluca.</i>
(vii)	Ciliata .....	<i>Paramecium, Stentor.</i>
(viii)	Tentaculifera .....	<i>Acineta, Dendrosoma.</i>

#### Porifera.

(i)	Calcarea .....	<i>Leucosolenia, Sycon.</i>
(ii)	Non-Calcarea .....	<i>Euspongia.</i>

#### Cœlenterata.

(i)	Hydrozoa .....	<i>Tubularia, Obelia, Carmarina, Physophora, Millepora.</i>
(ii)	Scyphomedusæ .....	<i>Haliclystus, Aurelia.</i>
(iii)	Anthozoa—	
	(a) Alcyonaria ....	<i>Alcyonium, Gorgonia, Pennatula</i>
	(b) Zoantharia ....	<i>Actinia, Edwardsia, Flabellum, Madrepora.</i>
(iv)	Ctenophora .....	<i>Pleurobrachia.</i>

#### Platyhelminthes.

(i)	Turbellaria .....	<i>Convoluta, Polycelis, Dendrocelum, Leptoplana.</i>
(ii)	Trematoda .....	<i>Distomum.</i>
(iii)	Cestoda .....	<i>Amphilina, Taenia.</i>

Nemertini .....

*Carinella, Cerebratulus.*

Nemathelminthes .....

*Ascaris, Rhabditis.*

**Annelida.**

- (i) Archiannelida ..... *Polygordius.*
- (ii) Chætopoda ..... *Nereis, Arenicola, Lumbricus.*
- (iii) Hirudinea ..... *Hirudo, Clepsine.*

**Gephyrea** ..... *Sipunculus.*

**Polyzoa.**

- (i) Entoprocta ..... *Loxosoma.*
- (ii) Ectoprocta ..... *Bugula.*

**Brachiopoda** ..... *Lingula, Waldheimia.*

**Rotifera** ..... *Brachionus.*

**Arthropoda.**

- (i) Crustacea ..... *Apus, Daphnia, Cypris, Cyclops  
Lepas, Nebalia, Astacus,  
Cancer.*
- (ii) Arachnida ..... *Limulus, Scorpio, Epeira.*
- (iii) Onychophora ..... *Peripatus.*
- (iv) Myriapoda ..... *Scolopendra, Julius.*
- (v) Insecta ..... *Periplaneta, Apis.*

**Mollusca.**

- (i) Amphineura ..... *Chiton, Neomenia.*
- (ii) Gastropoda ..... *Patella, Haliotis, Helix,  
Buccinum.*
- (iii) Scaphopoda ..... *Dentalium.*
- (iv) Cephalopoda ..... *Nautilus, Sepia.*
- (v) Pelecypoda ..... *Nucula, Mytilus, Anodonta.*

**Echinodermata.**

- (i) Crinoidea ..... *Antedon, Pentacrinus.*
- (ii) Holothuroidea ..... *Holothuria, Synapta.*
- (iii) Asteroidea ..... *Asterias.*
- (iv) Ophioidea ..... *Ophiura.*
- (v) Echinoidea ..... *Echinus, Echinocardium.*

**Chordata.**

- (i) Hemichorda ..... *Balanoglossus.*
- (ii) Urochorda ..... *Appendicularia, Ascidia,  
Pyrosoma, Doliolum, Salpa.*
- (iii) Cephalochorda ..... *Amphioxus.*
- (iv) Craniata [Vertebrata]
  - (a) Cyclostomata ..... *Petromyzon, Myxine.*
  - (b) Pisces ..... *Raja, Chimaera, Polypterus  
Neoceratodus, Gadus.*
  - (c) Amphibia ..... *Siren, Salamandra.*

- (d) Reptilia ..... *Sphenodon, Lacerta, Boa, Chelone, Crocodilus.*
- (e) Aves ..... *Struthio, Columba.*
- (f) Mammalia .... *Examples of the chief orders.*

### Laboratory Course.

In the practical class, which will be conducted in connexion with this course, a selection of the above-mentioned animal types will be dissected and microscopically examined.

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### Course III.

This course includes (1) a systematic account of the morphology, bionomics, and development of certain groups of invertebrate animals, and of the higher vertebrate animals; (2) a course on problems in Genetics and general Zoology; (3) a course in Embryology; and (4) Laboratory and Museum practical work (at least nine hours weekly).

The lectures will be given at 10-30 on Monday and Wednesday, and at 9-30 on Thursdays, and mainly during the Winter and Spring Terms.

FEE for Lectures and Laboratory, £12 12s. od.

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### Zoological Laboratory.

The Laboratory will be open daily during the Winter and Spring Terms from 10 to 5 (Saturdays 10 to 1); in the Summer Term, 9.30—4.30. In addition to the Laboratory and Museum available for students taking up practical work in connection with the various lecture courses, there is a Research Laboratory open to those who may desire to engage in original investigations, either independently or with a view to the requirements for the higher University Degrees of M.Sc. and D.Sc.

LABORATORY FEE: £3 3s. per term.

### Zoological Museum.

The Museum includes a representative series of animals illustrating the principal divisions of the Animal Kingdom. In addition, there are also special collections which have been presented to the Museum at different times, among which may be mentioned the Archer Collection of Shells ; the Hunter Barron series of Land and Fresh-water Shells ; the Williams Collection of British Birds' Eggs ; and the Pickard Cambridge Collection of British Spiders.

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### The Bridge Library.

The books and papers of the late Professor Bridge form the nucleus of a small Departmental Library for the use of advanced students and investigators.

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### The Port Erin Biological Laboratory.

The Council of the University makes an annual grant to the Marine Biological Laboratory at Port Erin, in the Isle of Man, in return for which one of the tables in the Laboratory is reserved solely for the free use of those students in the Zoological Department of the University who wish to study Marine Zoology, or pursue some branch of research. During the occupation of the table each worker will be entitled to the use of microscopes, re-agents, including a specified allowance of methylated spirit, and other apparatus, and of the boats, dredges, tow-nets belonging to the Laboratory, so far as is compatible with the claims of other workers and with the routine work of the station.

Facilities will also be given to workers to make their own collections of marine organisms.

Students wishing to avail themselves of the privilege are requested to apply to the Professor, from whom further information may be obtained.

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### Vacation Reading.

For a list of books suggested, see page 493

### *REQUIREMENTS FOR DEGREES.*

*Intermediate Examinations in Science and in Arts :—*

Course I in the first year.

*B.Sc. Degree :—*

- I. Zoology as a Subsidiary Subject ; Course II in the second year.
- II. Zoology as a double Subsidiary Subject ; Course II in the second and third years.
- III. Zoology as a Principal Subject ; Course II in the second and third years, and Course III in the third year.

*B.A. Degree :—*Course II.

*M.Sc. D.Sc. :—*

Students who have taken the degree of B.Sc., and who desire to proceed to the higher University degrees of M.Sc. and D.Sc., may confer with the Professor as to the choice of a subject for the thesis (M.Sc.) or (D.Sc.).

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### **AGRICULTURAL ZOOLOGY (Research).**

*Director* : PROFESSOR GAMBLE, D.Sc., F.R.S.

*Reader in Helminthology* : C. L. BOULENGER, D.Sc. ;  
M.A. (Cantab.), F.Z.S.

*Protozoologist* : T. GOODEY, M.Sc.

*Board Scholars* : { GILBERT E. JOHNSON, M.Sc.  
F. J. MEGGITT, M.Sc.

*Research Assistant* : E. W. LUDLAM.

The Board of Agriculture has approved of this University as one of the new Research Institutions in Agriculture, and has allotted Helminthology (*i.e.*, animal parasites other than insects affecting stock, plants, and soil) as the chief subject for investigation. A new laboratory has been completed at Edmund Street, which is the headquarters for the work, and an experimental house and plot of land are being prepared at Bournbrook.

Further information can be obtained by application to the Director.

## TIME TABLE

ZOOLOGY.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
Course I. . .	{ ..	12.30† 9.30*	..	..	12.30† 9.30*	..
Course II. . .	{ 12.30† 9.30*	..	12.30† 9.30*	12.30† 9.30*	..	..
Course III. . .	10.30	..	10.30	9.30	..	..
Laboratory . . .			Daily from 10 (9.30)* to 5 (4.30)*			

\*Summer Term.

†Winter and Spring Terms.

## BOTANY.

*Mason Professor* : GEORGE S. WEST, D.Sc. ; M.A. (Cantab.),  
A.R.C.S., F.L.S.

*Lecturer and Demonstrator* : JESSIE S. BAYLISS ELLIOTT, D.Sc.

*Honorary Curator of Fungus Herbarium* : W. B. GROVE, M.A.

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### Course I.

#### (VEGETABLE BIOLOGY.)

*Lecture Days*.—Tuesdays at 4.30 and Fridays at 4.

*Laboratory*.—The course will be illustrated by practical work in Morphology, external and internal, and Physiological experiments, at the following *alternative* times, viz., in the Winter and Spring Terms—Wednesdays 10.15 to 12.30, or Saturdays 10.30 to 1 ; in the Summer Term—Fridays 2.30 to 5, or Saturdays 10.30 to 1. Some of these laboratory periods, especially those in the Summer Term, may be spent in the Experiment House at the Botanical Gardens, Edgbaston.

**FEE** : Lectures and Laboratory, £3 3s.

The morphology of the Seed ; Germination ; the external morphology of the Seedling. The physiology of germination ; the general nature of the reserve food-stuffs ; the relations of the seedling with external conditions and natural forces ; the theory of Irritability. Growth to exhaustion, and the general conditions of active life and self-nutrition.

The general morphology of the Plant Body, and the principal modifications in form and distribution of the vegetative members, Root, Shoot, and Leaf.

The Living Principle of the Plant—Protoplasm ; the Cell, and its principal modifications for special purposes ; evolution and distribution of the Tissues, considered especially from a biological standpoint.

- The Leaf as a bio-anatomical study ; epidermis, vascular bundles, ground-tissue, intercellular spaces.
- The internal morphology of the Stem, in its chief modifications ; the results of cambial activity ; the secondary protective tissues, Cork and Bark. The Root.
- The Bud ; the principal characteristics of increase in length in shoot and root.
- The phenomena of climbing, and illustrations of special powers of movement.
- The elementary facts in the Nutrition of the plant, including the nature and sources of the raw materials of food, and the constitution of the soil ; Absorption and the Transpiration current ; the nature and functions of Chlorophyll ; the broad principles of metabolism, and the distribution, storage, and utilisation of its products. Respiration.
- Nutrition without chlorophyll, and special fermentative changes illustrated by Yeast, Bacteria, Moulds, and *Pythium*. Degrees of Parasitism in Flowering Plants. Insectivorous Plants.
- Reproduction. Asexual and Sexual, further illustrated by *Pleurococcus*, *Spirogyra*, *Vaucheria*, *Fucus* and *Agaricus*. The primary divisions of the Vegetable Kingdom, viz :— Thallophyta ; Bryophyta (illustrated by a moss-plant) ; Pteridophyta (a fern plant, *Selaginella*) ; and Spermatophyta (flowering plants).
- The general character and structure of the reproductive organs in Spermatophytes ; pollination and its methods ; fertilisation ; the development of the seed and the fruit ; seed protection and dispersal ; the natural spread of plants, and its limitations.
- The Flower, and its chief modifications in structural plan, as illustrated in the following Natural Orders of the British Flora, viz. ;—Ranunculaceae, Cruciferae, Violaceae, Caryophyllaceae, Leguminosae, Rosaceae, Umbelliferae, Compositae, Scrophularineac, Labiate, Cupuliferae, Liliaceae, Gramineae ; and the description of plant specimens in semi-technical language.
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*Botanical Excursions.*—A few will be arranged for Wednesday and Saturday afternoons in the Summer Term, and will be concerned with the Local Flora, especially in its relations with environment.

## Course II.

## (GENERAL COURSE.)

*Lecture Days.*—Mondays and Fridays at 9.30, Tuesdays and Thursdays at 11.30; or other, if more convenient, hours.

*Laboratory.*—Six hours weekly, with two extra hours in the Summer Term. More time should be given by students taking Botany as a principal or double subsidiary subject.

FEE: Lectures and Laboratory, £10 10s.

A. *Life History and Classification.*

The outlines of morphology, external and internal, embryology, and phylogenetic relationships of the chief groups of plants, and their most important sub-divisions, will be studied by the aid of the following selected examples, which, so far as possible, will be dealt with in Laboratory and the Field as well as Lecture Room.

## Thallophyta.

## PROTOTHALLOPHYTA.

- i. Flagellata.
- ii. Myxomycetes.
- iii. Schizomycetes. (Bacteria).

## ALGÆ.

i.	Cyanophyceae.	Protococcales.
	Peridineae.	Siphonales.
	Bacillarieae. (Diatoms).	Siphonocladiaceae.
	Chlorophyceae. (a) Isokontae	Ulvales.
(b)	Akontae	Schizogoniales.
	Stephanokontae	Ulotrichales.
	Heterokontae	Conjugatae.
		Oedogoniales.
v.	Phaeophyceae	Chloromonadales
	(a) Phaeosporeae	Confervales
	(b) Fucaceae	Laminaria.
	(c) Dictyotaceae	Fucus.
vi.	Rhodophyceae	Batrachospermum Sacheria, Chondrus, Callithamnion, Polysiphonia, Delesseria, Corallina, etc.

## CHARACÆ.

*Chara, Nitella.*

## FUNGI.

- A. Phycomycetes      (a) Archimycetes
- (b) Zygomycetes.
- (c) Oomycetes.
- B. Eumycetes.
  - i. Hemiascomycetes (a) Exoasceae.
  - (b) Saccharomyceteac.
  - ii. Ascomycetes.
    - (a) Pyrenomycetes Erysipheae, etc.
    - (b) Discomycetes. Pezizeae, etc.  
[Laboulbeniaceae.]
  - iii. Hemibasidiomycetes. (a) Ustilagineae.
  - (b) Uredineae, etc.
  - iv. Basidiomycetes.
    - (a) Hymenomycetes Agaricineae.
    - Polyporeae, etc.
    - (b) Gasteromycetes Lycoperdeae, etc.  
[Lichenes.]

## Bryophyta.

- i. Hepaticae      (a) Ricciaceae
- (b) Marchantiaceae *Marchantia*.
- (c) Jungermanniaceae
- (d) Anthocerotaceae
- ii. Musci      (a) Sphagnaceae *Sphagnum*.
- (b) Andreaceae
- (c) Bryaceæ *Funaria, Polytrichum*.

## Pteridophyta.

- i. Filicales      A. Eusporangiatae      *Botrychium*.
- B. Leptosporangiatae  
(a) Filices      *Pteris, Osmunda*.  
(b) Hydropterideae      *Pilularia, Equisetum*.
- ii. Equisetales
- iii. Psilotales.
- iv. Lycopodiales      (a) Lycopodiaceae      *Lycopodium*.  
(b) Selaginellaceae      *Selaginella*.  
(c) Isoëtaceae      *Isoëtes*.

## Spermatophyta (Phanerogams).

- i. Gymnospermae      (a) Cycadales
- (b) Ginkgoales
- (c) Coniferales
- (d) Gnetales      *Pinus, Cupressus*.

ii. *Angiospermae*

Monocotyledones.

Dicotyledones.

*Palaeobotany*.—The elements of the distribution of the chief groups of plants in time.

*Field Botany*.—In addition to the general morphology, &c., of the Phanerogamia, the course will include the characters and relationships of the most important Natural Orders in the British Flora and their centres of extra-British distribution ; and the chief sub-orders of the following : Ranunculaceae, Rosaceae, Cupuliferae, Coniferae ; the description of plants (not necessarily British) in technical language ; the origins of the British Flora.

B. *Physiology and Experimental Morphology*.

(DR. BAYLISS ELLIOTT.)

The stability of the Plant Body.

Aeration.

Nutrition ; the processes of absorption of water and dissolved substances, and their distribution ; Photosynthesis ; Root-pressure ; Transpiration.

The metabolic processes. Respiration.

The phenomena of growth and movement. Irritability ; the transmission of stimuli, and the mechanism of movement.

In the Laboratory the most important of the above phenomena will be experimentally studied, in the main qualitatively.

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## SPECIAL COURSES.

## Course IIA and IIB.

The following Special Courses of Lectures, open to students in their second or third years, will be delivered in the Spring and Summer Terms respectively, on Mondays at 10.30 a.m. (or other time by arrangement).

FEE for each Course, 10s. 6d.

A. *The Diseases of Plants.*

(DR. BAYLISS ELLIOTT.)

To include Club-Root (Finger and Toe). Bacterial Diseases. Black Scab of Potatoes. Mildews, downy and powdery. Damping-off of Seedlings; Leaf Curl; Bladder Plums; Witches' Brooms. Larch Canker. Ergot. Leaf-Blotches. Rust and Smuts. Root Rot and Heart-wood Rot of Trees. Dry Rot of Timber.

B. *Plant Distribution upon a Physiological Basis—Oecology.*  
(PROFESSOR WEST.)

The influence on vegetation of the various factors which affect plant life. Xerophytes, Hygrophytes, Holophytes, etc. Insular Floras.

Plant formations and plant guilds.

Vegetation of the temperate, tropical, and arctic zones.

The mountain regions of vegetation and the climatic factors which determine them. Alpine Floras.

## Course III.

Course III students who are taking Botany as a principal or double subsidiary subject, and other botanical students by arrangement, will have two or three lectures per week. The times of these lectures will be arranged so as to suit all those attending.

The subjects dealt with will include :—

*Special Oecology.*

*Advanced Morphology.*

*Palaeobotany.*

*Third Year Laboratory.*—Students who make Botany a principal subject and have taken the General Course in their second year, should devote as much time as possible to practical work in the Laboratory and in the field.

Micro-chemistry and the practice of modern histological methods will also be studied.

FEE: Lectures and Laboratory, £12 12s.

## BOTANICAL LABORATORY.

The Laboratory is open daily from 10 to 5, for the purpose of study or research. In connexion with it is an *Experiment House* in the Botanical Gardens of the Birmingham Botanical and Horticultural Society, Edgbaston, in which some of the work in Vegetable Physiology and Experimental Morphology is done.

FEE: £3 3s. od. per term.

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The Herbarium includes the following very valuable Special Collections :—

*The "Holmes" Collection of Algae.*—About 13,000 specimens ; made by E. M. Holmes, F.L.S. ; purchased and presented (through W. H. Wilkinson, F.L.S.) by Wm. A. Cadbury.

*Mr. Holmes' Library of works upon Algae* has also been purchased, by subscription, and placed with this collection.

*The "Plowright" Collection of Fungi.*—About 9,000 specimens made by Chas. B. Plowright, M.D. ; purchased and presented by a group of donors.

*The "Larbalestier" collection of Lichens.*—About 7,000 specimens ; made by Chas. du Bois Larbalestier, M.A., F.L.S. ; purchased and presented by Wm. A. Cadbury.

*The "Horrell" collection of Mosses.*—About 15,000 specimens ; made by E. Chas. Horrell, F.L.S. ; purchased and presented (through Thos. H. Russell, F.L.S.) by a group of donors.

To these Mr. Horrell has recently added, by gift, his *Collection of Sphagnaceae* (Bog-Mosses), about 10,000 specimens.

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*Botanical Gardens, Edgbaston.*—Students attending any of the Botanical Classes can obtain from the Professor a card of admission to these Gardens.

*REQUIREMENTS FOR DEGREES.**Intermediate Examination in Science :—Course I.**B.Sc. Degree :—*Botany as a Principal Subject :—Courses II and III,  
together with the Special Courses.

Botany as a Single Subsidiary Subject :—Course II.

Botany as a Double Subsidiary Subject :—Course II,  
with the extended laboratory practice of Course III,  
together with the short Special Course IIA.*Intermediate Examination in Arts :—Course I.**B.A. Degree :—Botany as a Subsidiary Subject :—Course II.***TIME TABLE.**

(LECTURES ONLY).

BOTANY.	Mon.	Tues.	Wed.	Thur.	Fri.
Course I. ... .. ..		4.30	..	..	4.0*
Course II. † ... ..	9.30	11.30	..	11.30	9.30
.. (Special Courses) ‡ ... ..	10.30	..	..	..	..
Course III. (Special Courses) ... ..				<i>By arrangement.</i>	
Laboratory ... ..				Daily, 10.0 to 5.0.	

\* In the Summer Term the Friday lectures in Course I may not be given.

† The times stated for these lectures may be altered by arrangement.

‡ Spring and Summer Terms.

## GEOLOGY

(with PHYSIOGRAPHY and GEOGRAPHY).

*Professor :* WILLIAM SAVAGE BOULTON, B.Sc., D.Sc  
(Wales), Assoc. R.C.S., F.G.S.

*Lecturers :*

F. RAW, B.Sc. (Lond.), F.G.S.

LEONARD J. WILLS, M.A. (Cantab.), F.G.S., Fellow of King's College, Cambridge.

*Special Lecturer on Petrology :* F. RAW, B.Sc., F.G.S.

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### Course I.

*Edmund Street.*—Hours by arrangement, in addition to the Edgbaston hours.

*Edgbaston, Lectures.*—Tuesdays and Thursdays at 9.30.

*Laboratory.*—Tuesdays and Thursdays at 10.30.

*Field Class.*—Saturday mornings.

**FEE :—£5 5s.**

*(Students in Pure Geology attend six hours weekly; students in Applied Geology four hours, apart from work in the field.)*

## PHYSICAL GEOLOGY.

GENERAL CHARACTER of the simple rock types.

**ORIGIN, CHARACTERS AND CLASSIFICATION OF THE SEDIMENTARY ROCKS.**—Denudation by weather, rivers, glaciers, and the sea ; deposition of sediments, and structures resulting therefrom, stratification, lamination, etc. ; consolidation and cementation. Lithology and classification of the chief types ; breccia, conglomerate, grit, sandstone, clay, shale, limestone, coal, salt, gypsum.

**ORIGIN, CHARACTERS, AND CLASSIFICATION OF THE IGNEOUS ROCKS.**—Volcanoes ; their action and the rocks produced by them. Minerals : quartz, felspars, mica, augite, hornblende, olivine, serpentine, leucite, tourmaline, garnet. Common vein-minerals : calcite, fluor, apatite, barytes. Textures of the igneous rocks. Chief types of volcanic

rocks ; rhyolite, trachyte, obsidian, pitchstone, pumice, andesite, basalt ; clastic volcanic rocks ; quartz-porphyry, dolerite. Chief types of plutonic rocks ; granite, syenite, diorite, gabbro.

EARTHQUAKES and secular movements of the earth-crust.

STRUCTURES AND ARRANGEMENT OF THE SEDIMENTARY ROCKS.

—Folds, faults, cleavage planes, joints ; mineral veins ; geological formations and systems ; geological maps and sections.

STRUCTURES AND ARRANGEMENT OF THE IGNEOUS ROCKS.—

Dykes, sills, laccolites, bosses, etc.

THE FOLIATED AND ALTERED ROCKS.—Gneisses, schists, quartzite, slate, marble ; contact and dynamic metamorphism.

### *STRATIGRAPHICAL GEOLOGY.*

INTRODUCTORY.—The laws and generalizations of *Stratigraphy* and *Palaeontology* ; *Fossils*, their mode of petrifaction, and uses in geology : The order of superposition : The Geological Record.

THE GEOLOGICAL SYSTEMS.—The sequence, lithology, and distribution of the Geological Systems in the British Isles.

THE EOCOIC ERA.—General physical characters and relationships of the *Pre-Cambrian* Rocks.

THE PROTOZOIC ERA.—General characters of the rocks and fossils of this era : outlines of the classification of the formations and organic remains of the *Cambrian*, *Ordovician*, and *Silurian* Systems in Britain.

THE DEUTOZOIC ERA.—Chief characteristics of strata and organic remains of British rocks of this era : The *Devonian* or Old Red Sandstone Period : the *Carboniferous* System of Britain ; its main divisions and fossils ; chief British coalfields and their economic products : The *Permian* Rocks.

THE MESOZOIC ERA.—Physical features of the *Triassic* Rocks of Britain and Germany : British salt producing districts ; The *Jurassic* formations and their iron-stones, building stones, and most abundant fossils ; The *Cretaceous* Rocks, conditions of their deposition and life.

THE CAINOZOIC ERA.—Contrasts between Mesozoic and Cainozoic life : Chief divisions and zoological features of British *Tertiary* Rocks : Crust disturbances during Tertiary time.

THE GLACIAL AND POST-GLACIAL EPOCHS.

***FIELD WORK.***

In connection with the above course, a Field Class for the study of the Geology of the Birmingham District will be held every Saturday morning, when practicable, throughout the Session.

TEXT BOOKS RECOMMENDED :—WATT'S *Geology for Beginners*; LAPWORTH'S *Intermediate Text Book of Geology*; HATCH'S *Mineralogy*; LAPWORTH and others, *Geology of the Birmingham District*; LAKE AND RASTALL'S *Text Book of Geology*.

**Course IIA.**

(For Pure Science Students.)

***Lectures, Laboratory, and Field Work—***

Edmund Street—Hours by arrangement, in addition to the hours at Edgbaston.

Edgbaston—Wednesdays and Fridays at 10.30 and 11.30. All day Friday in Summer Term, and Saturday mornings throughout the Session.

**FEE :** £4 4s.

**(1) PETROLOGY.**

The description and determination by physical and microscopical tests of the chief rock-forming minerals; study in hand specimens, and microscope slides of the chief rock types. Distribution of the chief rock types of the British Isles.

**(2) GRAPHICAL GEOLOGY.**

The construction of geological maps and sections from given data; the determination of the position, extent and relations of coal seams and other strata of economic value; dislocations, veins, etc.; interpretation of detailed maps and sections.

**(3) STRATIGRAPHY.**

The geological formations of Britain as shown in their typical areas, and their general distribution in the British Islands; their lithology, sub-divisions, fossils, correlation and economics: geology and physiography of special areas occupied by them. The physical geography and vulcanicity of the different periods.

**(4) PALÆONTOLOGY.**

Fossils, their preservation, sequence, and affinities; structure, classification, and distribution of the most important fossil forms.

## (5) FIELD GEOLOGY.

Excursions in the Birmingham District on Saturday mornings throughout the session.

A detailed study of a definite area in the Midlands, considered as a type ; the characters and development of its different rock-formations ; their relationships and economics. One day in each week in the summer term is devoted by the class to mapping the selected area in the field, or to laboratory work connected therewith.

TEXT BOOKS RECOMMENDED.—LAPWORTH'S *Intermediate Geology* ; HATCH'S *Petrology* ; A. GEIKIE'S *Text Book of Geology* ; J. GEIKIE'S *Structural and Field Geology* ; JUKES-BROWN'S *Stratigraphical Geology* ; or LAKE and RASTALL'S *Text Book of Geology* ; WOOD'S *Palaeontology*.

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## Course II B.

(For Applied Science Students.)

*Lectures, Laboratory, and Field Work.*

Edgbaston—Wednesdays and Fridays at 10.30 and 11.30. All day Fridays in the Summer Term, and Saturday mornings throughout the Session.

FEE : £4 4s.

Sections (1), (2), and (5) in Course IIA, for Pure Science Students, together with the following :—

LITHOLOGICAL GEOLOGY.—The lithology and distribution of the geological formations and subformations of Britain, and their bearing upon the relief and drainage of the country, its building materials, roads, railways, and canals, mineral products, water-yield, and upon the industries and distribution of the population.

## Special Economic Geology for Engineering Students.

- (a) WATER SUPPLY.—Overground supplies, drainage areas, reservoir sites ; underground supplies, springs, wells, drainage areas ; effects of rock structure and surface configuration ; contamination, etc. ; the British waterbearing formations.
- (b) BUILDING MATERIALS.—Distribution of building materials ; building-stones, clays, slates, cements ; ornamental stones, road metals.

### Special Economic Geology for Mining Students.

- (c) FUELS.—The geological distribution of the coal bearing formations ; position and succession of the coal seams ; the coalfields of the British Islands, visible and hidden, their structure and correlations ; characters, modes of origin, relations, and distribution of petroleum-yielding rocks, etc.
- (d) ORE DEPOSITS.—Nature, modes of origin, structure, relationships, and distribution of the chief kinds of ore deposits ; the chief ore-bearing districts in the British Islands and abroad.

TEXT BOOKS RECOMMENDED.—JAS. GEIKIE'S *Structural and Field Geology* ; GIBSON'S *Geology of Coal and Coal Mining* ; WOODWARD'S *Geology of Water Supply* ; THOMAS AND MACALLISTER'S *Geology of Ore Deposits*.

Persons not attending Lectures, but wishing to work in the Geological Laboratory and Museum, can do so at all times when open, on payment of a terminal fee of £2 2s., or for two hours weekly, 10s. 6d. each term. Such students will be encouraged and assisted in the prosecution of their private studies or original work.

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### Course III.

(For M.Sc. Degree in Geology.)

Special courses of study and investigation will be arranged in some selected branch of Geology for candidates for the M.Sc. Degree.

For general regulations see page 186.

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### POST-GRADUATE COURSES.

#### Course IV.

##### Research Work.

*IN GEOLOGY AND PALÆONTOLOGY.*

FEE for each Term : £2 2s.

Advanced students who have completed their systematic University Courses, those who have obtained the degree

of M.Sc., and are preparing for the Doctorate, and occasional geological students, British or Foreign, studying some special branch of Geology or Palæontology, work in the Museum and Laboratory during term time, under the direction of the Professor and Lecturers, with use of the collections and apparatus.

The chief subjects at which such students may work include (1) Graptolites, Trilobites, Brachiopods, etc., British and Foreign; (2) Geological Surveying; (3) Zonal Geology; and (4) Petrography.

The large collections of rocks and fossils in the Geological Museum from the older rocks, the range and variety of the geological formations in the Birmingham District, and the proximity and availability of the classical geological ground of the West of England, afford research students especial opportunities and facilities for the prosecution of original work.

For Vacation Reading see page 495.

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### *REQUIREMENTS FOR DEGREES.*

#### *B.Sc. Degree.*

1. Geology as the *principal* subject: Course I in the first year; Course IIA in the second year, or such parts of Course IIA and IIB as shall be previously determined.

2. Geology as a *subsidiary* subject:—

- (a) One year, Course I.
- (b) Two years, Course I and Course IIA or IIB.
- (c) *B.Sc. Degree in Mining.* Course I in the second year; Course IIB in the third year.
- (d) *B.Sc. Degree in Engineering.* Course I in the second year; Course IIB in the fourth year.

*B.A. Degree.*

Geology as a *subsidiary* subject :—

- (a) One year, Course I.
  - (b) Two years, Course I and Course IIA or IIB.
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## TIME TABLE.

GEOLOGY.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
Course I. Lectures and Laboratory, Edmund Street.						
Edgbaston	..	..	9.30 10.30	..	9.30 10.30	..
Excursions	..	..	..	..	..	Morn
Course IIA, Lectures and Laboratory, Edmund Street						
Edgbaston	..	{ ..	..	10.30	..	10.30
Excursions	..	{ ..	..	11.30	..	11.30
Field work (Sum.)	..	..	..	..	All day	..
Courses III and IV.	..		By arrangement.			

### Elementary Economic Geology.

This Course is projected for Brewing Students and candidates for the Degree in Public Health, and for those who are unable to attend a complete systematic Course in Geology, but who are desirous of knowing the elements of the science and some of its practical applications.

The Course will include about ten lectures and ten demonstrations; two hours a week, during the Winter Term.

**FEE : £1 1S.**

**Winter Term**—By arrangement.

- I. THE OUTLINES OF GEOLOGY.—The rocks and rock-formations; geological maps and sections, their interpretation and uses.
  - II. GEOLOGY AND WATER SUPPLY.—
    - (a) Overground waters and their action and utilization; drainage, sanitation, water supply, reservoirs.
    - (b) Underground waters and water supply, water bearing rocks and formations, springs, wells, hard and soft waters.
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### AFTERNOON CLASSES.

#### I.—ELEMENTARY COURSE.

A course of about thirty lectures (10 in each Term) is delivered on the

#### Elements of Geology.

These Lectures are of a popular and untechnical character, and present a summary of the chief principles, methods, and conclusions of the Science of Geology. They are illustrated by a series of diagrams, rock specimens and fossils. This course is intended for beginners in Geology, for amateurs, for those persons of leisure who desire a knowledge of the outlines of the science, and for those who intend to join the Summer Excursion Class.

Admission to the first lecture free.

## WINTER TERM.

**Physical Geology.**

*Lecture Hour.*—Tuesdays, at 3.0 p.m.

FEE : 10s. 6d.

TEXT BOOKS RECOMMENDED.—WATT'S *Geology for Beginners* (Macmillan). LAPWORTH : *Intermediate Text Book of Geology* (Blackwood).

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## SPRING TERM.

**Historical Geology.**

*Lecture Hour.*—Tuesdays, at 3.0 p.m.

FEE : 10s. 6d.

ADDITIONAL TEXT BOOK RECOMMENDED—JUKES-BROWNE : *The Building of the British Isles* (Bell).

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## SUMMER TERM.

**Local Geology and Excursion Class.****GEOLOGY OF THE BIRMINGHAM DISTRICT.**

The main object of this Section is to afford the student a practical knowledge of the geological structure of the neighbourhood of Birmingham and of the Midlands in general. The various geological formations found within thirty miles of Birmingham are described in a series of lectures, illustrated by typical rocks and fossils.

*Lecture Hour.*—Tuesdays, at 2.30 p.m.

FEE for the Term :—10s. 6d.

TEXT BOOK RECOMMENDED.—LAPWORTH, WATTS, and HARRISON : *A Sketch of the Geology of the Birmingham District.*

## GEOLOGICAL EXCURSIONS.

At least six Saturday Excursions will be taken by the members of the Class during the session to the more important geological localities in the district, and the visible phenomena studied in the field. FEE for the Excursions, for members of the Elementary Class, 10s. 6d. ; for non-members, £1 1s.

As a general rule the Excursions will take place on a Saturday after 1 p.m. A few whole-day excursions may be made by arrangement with the members of the class.

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## II.—ADVANCED COURSE.

## WINTER AND SPRING TERMS.

An Afternoon Class in Advanced Geology for Senior Students, Post Graduate Students, and others, dealing with the later and current advances in Geological Science, may be held as in previous years, during the Winter and Spring Terms.

*Lecture Hours*—by arrangement—Two hours weekly.

FEE: £1 1s. per Term.

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## GEOGRAPHY.

*Lecturers* { F. RAW, B.Sc. (Lond.), F.G.S.  
                  { LEONARD J. WILLS, M.A. (Cantab.), F.G.S.

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### Course I.

#### INTERMEDIATE.

Wednesdays at 12.30 and Thursdays at 3.30, and a third hour by arrangement.

FEE : £3 3s.

#### Physical.

**ATMOSPHERE.**—Weather, its local and regional variation, weather charts, storm warnings, and weather forecasts. Climates, their causes and present and past distribution. Magnetic phenomena; variation of the compass.

**HYDROSPHERE.**—Form of the ocean floor, and its relation to that of the Continents. Deep water temperatures and currents. Distribution of life in ocean waters. Abyssal and deep sea deposits. The tides.

**LITHOSPHERE.**—The composition and arrangement of the materials of the earth crust. The rock formations. Crust movements, earthquakes, and volcanoes, and their effects. General relief of the land and its causes; plateaux, mountains, plains, and valleys, and their origin.

**LANDSCAPE.**—Origin and development of landscape features. Form and development of rivers and river basins. Form and development of coast lines.

**BIOLOGICAL GEOGRAPHY.**—Distribution of terrestrial life. Characteristics and relations of the different biological regions.

### Political.

**MAN.**—The races of mankind, modes of existence, grades of civilisation, modes of government, industries and commerce.

**EUROPE.**—Inter-relations of relief, contour and drainage; distribution of climates, floras, and faunas; natural and cultivated productions. Distribution of people as regards race, nationality, and language; chief countries, and their centres of population and industry.

Outlines of the geography of France, Germany, Italy, Russia, together with one of the following :—

- (1) Asia : (a) Asia in general; (b) India; (c) China; (d) Japan.
- (2) Africa : (a) Africa in general; (b) Egypt; (c) British Africa.
- (3) America : (a) America in general; (b) British North America; (c) United States.
- (4) Australasia : (a) Australasia in general; (b) Australia; (c) New Zealand.

### Practical.

The reading and use of topographical maps on the 6in., 1in., and  $\frac{1}{4}$ in. scale; measurement of distances, directions, and areas; conversion of scales; representation of relief, drainage, and human works; tracing of water-sheds and drawing of sections to scale.

The reading of the thermometer, barometer, compass, etc.

Making of maps, and plans (a) by pacing and compass, and (b) by plane table.

Out-door study of the topography of some special part of the Birmingham District and its causes.

Map projections, mode of construction, and special uses of each.

General application of maps and graphs.

### Course II.

#### COMMERCIAL.

The principles of Geography, with special reference to their application to Commerce.

*Lectures.*—Thursdays at 3-30, and by arrangement.

FEE for the Course, £3 3s.

**General.**

*The Political Section of the Intermediate Geography Course.*

**Special.**

(*To be taken in Special Class.*)

**MINERAL PRODUCTS OF ECONOMIC VALUE.**—Distribution of rocks and soils, building and road-making materials; clays, fuels, ores, mineral manures, chemicals.

**ORGANIC PRODUCTS OF ECONOMIC VALUE.**—Food materials and their distribution, textile raw materials, skins, timber, etc.

The Commercial Geography of areas specially selected to suit the requirements of the students.

Study and interpretation of maps.

**TEXT BOOKS RECOMMENDED.**—LYDE'S *Commercial Geography*; HERBERTSON'S *Commercial Geography*; CHISHOLM'S *Commercial Geography*; ADAM'S *Commercial Geography*; BARTHolemew's *Atlas of Commerce*.

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## HUMAN ANATOMY and ANTHROPOLOGY.

*Professor*: PETER THOMPSON, M.D., Ch.B. (Vict.)

*Lecturer*: THOMAS YEATES, M.B., C.M. (Edin.), B.Hy., D.P.H. (Durham).

*Demonstrators*: { VIOLET A. P. COGHILL, M.B., Ch.B. (Edin.)  
B. G. GOODWIN, F.R.C.S.

*Hon. Demonstrators*: { W. E. BENNETT, M.B., Ch.B. F.R.C.S.  
SEYMOUR BARLING, M.B., M.S., F.R.C.S.

*Special Lecturer in Osteology*:

THOMAS YEATES, M.B., C.M., B.Hy.

The courses in Human Anatomy will be found fully described in the Medical Syllabus. The following information relates to candidates taking the above subject for the B.Sc. examination.

I.—In Human Anatomy the candidate must have pursued the entire medical course for two Winter Sessions and one Summer Session, as detailed in the regulations for medical degrees. He must also produce evidence that he has dissected the whole body at least once.

II.—In Anthropology the candidates must have attended the following courses of lectures :—

- (i) The course on Embryology.
- (ii) A course of lectures and practical instruction in Physical Anthropology. This course will include a general review of the province of Anthropology. Zoological and Anthropological characters of Man. Physical measurements on the living subject. Cranial and other skeletal measurements.

**FEES** for these Courses :—

I. For the two Winter and one Summer

Sessions .. .. .. ..	£	26	5	0
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Incidental Fees .. .. .. ..	3	18	9
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II. For the Courses detailed under this section .. .. .. ..

4	4	0
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## PHYSIOLOGY.

*Professor* : E. W. WACE CARLIER, M.Sc. ; M.D. (Edin.),  
F.R.S.E.

*Lecturer* : GWYNNE MAITLAND, B.Sc. ; M.D. ; D.Phil. (Edin.)

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### Course I.

The courses prescribed in the Faculty of Medicine under II and III.

### Course II.

The courses prescribed in the same Faculty under I and IV. The syllabus of IV is here appended :—

#### **Advanced Practical Physiology.**

Mondays and Thursdays, or Tuesdays and Fridays, from 2.30 to 4.30, during the whole Winter and Summer Sessions.

Tutorial Classes will also be held on the other afternoons when possible.

**FEE** for the Course : £8 8s., including an incidental fee of £3 3s.

The Course will include the more advanced problems of experimental physiology, histology, and physiological chemistry. The experimental part includes the physiology of muscle, nerve, heart, circulation, respiration, central nervous system, and organs of sense and voice. The chemical section includes the analysis of organic substances found in the body, the chemical and spectroscopic examination of the blood and its derivatives, the chemistry of the digestive products and the results of their activity. The histological part consists in the practice of the more advanced and complicated methods

of histological research and of the results obtained by their use.

Students desiring to prosecute research or other independent work in the laboratory will be allowed to do so *at the discretion of the Professor* on the payment of a fee of Two Guineas, including an incidental fee of £1 1s., for each period of three months.

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#### *REQUIREMENTS FOR DEGREE.*

##### *B.Sc. Degree :—*

- (1) Physiology as a Principal Subject : Students must take Course I as above in their first year, and Course II in their second year.
  - (2) Physiology as a Single Subsidiary Subject : Courses I and III of the Medical Syllabus.
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## ENGINEERING.

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### GENERAL INTRODUCTION.

The full courses extend over four years, and lead to the Degree of Bachelor of Science in Engineering. Candidates for the degree must be matriculated before entering the courses.

Candidates for the degree who, before entrance to the University, have passed the first Engineering Examination (or an Examination recognised by the University as equivalent under the conditions specified on page 167), will be allowed to enter the second year, and will be eligible for the degree in three years, instead of four.

Students who are unable to take a full course, or who have not been matriculated, will be admitted to the classes as far as room permits, and on leaving the University will receive a certificate stating the courses they have taken and their position in the examinations; *but before entering such students are required to pass an entrance examination in Mathematics, and in either Experimental Mechanics or Chemistry up to the matriculation standard.*

Students, without taking a systematic course, may be admitted to any special course, provided that they can satisfy the Professor concerned that their previous knowledge is such as to enable them to follow with advantage the instruction given.

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### REQUIREMENTS FOR DEGREES.

The courses for the first year are the same for all branches of Engineering, but after the first year students must take up definitely one of the branches, Mechanical, Civil, or Electrical Engineering. The time tables for the classes in all subjects taken by Engineering students are appended. Full details of the various Engineering courses will be found in the syllabuses of Mechanical, Civil, and Electrical Engineering, and of the Science courses in the syllabuses of the respective subjects.

In each year there are certain essential subjects in which students must pass before being allowed to enter the courses of the following year.

### First Year.

#### FOR ALL STUDENTS OF ENGINEERING.

- (a) *Engineering.*      Lectures, Course I ; Drawing ; Workshop.
  - (b) *Mathematics.*      Course I (Pure) : or, for more advanced students, Course II (Pure), and Course I (Applied.)
  - (c) *Physics.*              Lectures, Course I and Laboratory.
  - (d) *Chemistry.*              Lectures, Course I (A) and Laboratory ; Course I (Metals, etc.) Tutorial.
  - Essential Subjects.*      Engineering and Mathematics I.
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#### MECHANICAL AND ELECTRICAL ENGINEERING.

### Second Year.

- (a) *Engineering.*      Lectures, Course IA ; Course II ; Exercises ; Drawing ; Workshop ; Vacation Workshop.
- (b) *Mathematics.*      Course II (Pure), and Course I Applied ; or, for more advanced students, Course III (Pure) and Course II (Applied).
- (c) *Physics.*              Lectures, Course II.
- (d) *Metallurgy.*              Lectures, Course II and Laboratory (including Steel Smelting).
- Essential Subjects.*      Engineering, Mathematics II Pure, and the completion of first year courses.

**Third Year.***(a) Engineering.*

Lectures, Course III ; Heat Engines, Course IV ; Mechanical Engineering, Course V ; Civil Engineering, Course VIII ; Electrical Engineering, Course XIII ; Laboratory (Heat) ; Laboratory (Strength of Materials) ; Laboratory (Electrical) ; Drawing (Mechanical) ; Drawing (Electrical) ; Workshop ; Vacation Workshop

*(b) Mathematics.*

Special Course.

*Essential Subjects.*

Engineering and the completion of the second year courses.

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**Fourth Year.***(a) Engineering*

Lectures, Course VI ; Lectures, Course XIV ; Laboratory (Heat) ; Laboratory (Strength of Materials and Hydraulics) ; Laboratory (Electrical) ; Designing (Mechanical) ; Designing (Electrical).

*(b) Accounting**Essential Subjects.*

Mechanical and Electrical Engineering.

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**CIVIL ENGINEERING.****Second Year.***(a) Engineering.*

Lectures, Course IA ; Lectures Course II ; Exercises ; Drawing ; Surveying and Drawing, Course VII ; Workshop

(b) <i>Mathematics.</i>	Course II (Pure), and Course I (Applied); or, for more advanced students, Course III (Pure), and Course II (Applied).
(c) <i>Physics.</i>	Lectures, Course II.
(d) <i>Geology.</i>	Lectures, Course I; Laboratory.
(e) <i>Surveying.</i>	(Vacation), Course IX. (d)
<i>Essential Subjects.</i>	Engineering, Pure Mathematics II, and the completion of the first year courses.

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### Third Year.

(a) <i>Engineering.</i>	Lectures, Course III; Lectures, Course VIII; Lectures, Course IX; Exercises, Course IX (c); Machine Design, Course III (Mechanical); Lectures, Course IV; Lectures, Course V; Lectures, Course XIII; Laboratory (Heat, Strength of Materials, and Electrical).
(b) <i>Mathematics.</i>	Special Course.
(c) <i>Surveying.</i>	(Vacation) Course IX (d).
<i>Essential Subjects.</i>	Engineering and the completion of the second year courses.

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### Fourth Year.

(a) <i>Civil Engineering.</i>	Lectures, Course X; Lectures, Course XI; Lectures, Course XII; Lectures, Courses XV and XVI; Designing, Course X (b); Laboratory (Strength of Materials, Hydraulics).
(b) <i>Geology.</i>	Lectures and Laboratory, Course II; Field Work.
(c) <i>Accounting.</i>	
<i>Essential Subject.</i>	Civil Engineering.

FIRST YEAR MECHANICAL, CIVIL AND ELECTRICAL ENGINEERING TIME TABLE.

SUBJECTS.	TERM.	CLASS HOURS.					Sat.
		Mon.	Tues.	Wed.	Thurs.	Fri.	
ENGINEERING—							
Lectures, Course I..	..	..	..	..	..	..	..
Drawing ..	..	..	..	..	..	..	..
Workshop ..	..	..	..	..	..	..	10-1
MATHEMATICS—							
Course I (Pure)—Edgbaston ..	..	Session 12.30	..	..	..	12.30	..
or							
Course II (Pure) ..	..	Session ..	..	..	..	..	..
Course I (Applied) ..	..	Session ..	..	..	..	..	..
PHYSICS—							
Lectures, Course I..	..	..	..	..	..	..	..
Laboratory ..	..	..	..	..	..	..	..
CHEMISTRY—							
Lectures, Course 1A ..	..	..	..	..	..	..	..
Laboratory ..	..	..	..	..	..	..	..
Course I (Metals, etc.) ..	..	..	..	..	..	..	..
Tutorial ..	..	..	..	..	..	..	..

COMPOSITION FEE: £34 10s. 6d.

SECOND YEAR MECHANICAL AND ELECTRICAL ENGINEERING TIME TABLE.

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SUBJECTS.	TERM.	CLASS HOURS.				
		Mon.	Tues.	Wed.	Thurs.	Fri.
<b>ENGINEERING—</b>						
Lectures, Course II	..	Session ..	12.30 ..	..	12.30 ..	..
" Course I A (Electrical)	..	Session ..	2.30—5 ..	..	.. ..	10.30 ..
Exercises ..	..	Session ..	..	..	.. ..	9.30 ..
Drawing ..	..	Session ..	..	..	.. ..	.. ..
Workshop ..	..	Session ..	2—5 ..	..	2.30—5 ..	11.30—1 ..
Do. ..	..	Vacation ..	..	..	.. ..	.. ..
<b>MATHEMATICS—</b>						
Course II (Pure)—Edgbaston)	..	Session 10.30 ..	..	10.30 ..	..	10.30 ..
Course I (Applied)	..	Session 9.30 ..	..	9.30 ..	..	9.30 ..
<i>or—</i>						
Course III (Pure)	..	Session ..	..	9.30 ..	..	9.30 ..
Course II (Applied)	..	Session 10.30 ..	..	10.30 ..	..	10.30 ..
<b>PHYSICS—Lectures, Course II</b>						
	..	Session 11.30 ..	..	11.30 ..	..	11.30 ..
<b>METALLURGY—Lectures, Course II</b>						
Laboratory (including Steel Smelting)	..	Session ..	11.30 ..	..	11.30 ..	..
	..	Session ..	..	2—5 ..	..	.. ..

COMPOSITION FEE : £50 10s. 6d.

SECOND YEAR CIVIL ENGINEERING TIME TABLE.

279

SUBJECTS.	TERM.	CLASS HOURS.				
		Mon.	Tues.	Wed.	Thurs.	Fri.
ENGINEERING—						
Lectures—Course IA (Electrical)	..					
Lectures—Mechanical, II	..					
Exercises ..	..					
Machine Drawing ..	..					
Surveying and Drawing, Civil, Course VII..	..					
Workshop ..	..					
Surveying, Civil, Course IX (d)	..					
MATHEMATICS—						
Course II (Pure)—Edgbaston	..	Session 10.30	..	10.30	..	10.30
Course I (Applied) ..	..	Session 9.30	..	9.30	..	9.30
Course III (Pure) ..	..	Session 9.30	..	9.30	..	9.30
Course II (Applied) ..	..	Session 10.30	..	10.30	..	10.30
PHYSICS—						
Lectures, Course II ..	..	Session 11.30	..	11.30	..	11.30
GEOLOGY—						
Lectures and Laboratory—Course I	Session ..	9.30-11.30	..	9.30-11.30	..	..

COMPOSITION FEE : £50 10s. 6d.

THIRD YEAR MECHANICAL ENGINEERING TIME TABLE.

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SUBJECTS.	TERMS.	CLASS WORK.					
		Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
MATHEMATICS—Applied (Special) ..	Session	9.30	9.30	9.30	9.30	..	..
ENGINEERING—							
Lectures—Mechanical, Course III ..	Session	..	..	11.30	..	..	..
Course IV ..	Spring	11.30	..	..	..	10.30	..
Course V ..	Session	..	10.30	..	..	9.30	..
Civil, Course VIII ..	Session	10.30	..	..	10.30	..	..
Electrical, Course XIII ..	Session	..	11.30	..	11.30	11.30	..
Laboratory—Heat ..	Spring	..	2—5	or	2—5	..	..
Strength of Materials ..	Winter	..	2—5	..	..	..	..
Electrical ..	Session	..	..	..	2—5	..	..
Drawing—Mechanical ..	..	..	{ Session	..	..	..	..
..	..	..	Winter	2—5	..	..	..
..	..	..	{ Sp&Sum	..	..	..	..
..	..	..	Session	..	..	..	..
Workshop ..	..	..	..	Session	..	..	..
Do. ..	..	..	..	Vacation	..	..	..

COMPOSITION FEE : £50 ros. 6d.

THIRD YEAR CIVIL ENGINEERING TIME TABLE.

SUBJECTS.	TERMS	CLASS WORK.				
		Mon.	Tues.	Wed.	Thurs.	Fri.
MATHEMATICS—Applied (Special) ..	.. Session	9.30	9.30	9.30	9.30	.. ..
ENGINEERING—						
Lectures—Mechanical, Course III	.. Session	..	..	11.30	..	.. ..
Drawing " Course III	.. Session	..	..	..	..	2—5 ..
Lectures— " Course IV	.. Spring	11.30	..	..	10.30	.. ..
" Civil, Course VIII ( <i>a, b</i> )	.. Session	10.30	..	..	10.30	.. ..
" " Course IX ( <i>a, b</i> )	.. Session	..	..	10.30 and 2—5	..	9.30
" Mechanical, Course V	.. Session	..	10.30	..	..	9.30 ..
Exercises—Mechanical, Course IX ( <i>c</i> )	.. Session	2—5	..	..	..	.. ..
Lectures—Electrical, Course XIII	.. Session	..	11.30	..	11.30	.. ..
Laboratory—Strength of Materials	.. Winter	..	2—5	..	..	.. ..
" Heat	.. Spring	..	2—5	..	..	.. ..
" Electrical .. ..	.. Session	..	..	..	2—5	.. ..
Surveying—Civil Course IX ( <i>d</i> ) ..	..	..	..	..	Summer	Vacation

COMPOSITION FEE : £50 10s. 6d.

THIRD YEAR ELECTRICAL ENGINEERING TIME TABLE.

SUBJECTS.	TERMS.	CLASS HOURS.					Sat.
		Mon.	Tues.	Wed.	Thurs.	Fri.	
MATHEMATICS—Applied (Special) ..	Session ..	9.30	9.30	9.30	9.30	..	..
ENGINEERING—							
Lectures—Mechanical, Course III	Session ..	..	..	11.30	..	..	..
Course IV.	Spring ..	11.30	..	..	..	10.30	..
" "	Session ..	..	10.30	..	..	9.30	..
" "	Session ..	10.30	..	..	10.30	..	..
" "	Session ..	..	11.30	..	11.30	11.30	..
Laboratory—Heat	Spring ..	..	2—5	..	..	..	..
" Strength of Materials	Winter ..	..	2—5	..	..	..	..
Electrical ..	Session ..	..	..	..	..	2—5	..
*Drawing—Mechanical	..	..	2—5	..	..	..	..
.. Electrical	..	..	{ Sp&Sum	..	..	..	..
Workshop ..	..	..	{ Session	..	..	..	..
Do. ..	..	..	{ Session	..	..	..	..
			Vacation ..	..	..	..	..

\* Students are expected to utilise any spare time between Lectures in the Drawing Office.

COMPOSITION FEE: £50 10s. 6d.

## FOURTH YEAR MECHANICAL ENGINEERING TIME TABLE.

SUBJECTS.	TERMS.	CLASS HOURS.				
		Mon.	Tues.	Wed.	Thurs.	Fri.
ENGINEERING—						
Lectures—	Mechanical, Course VI	Session 9.30	11.30 9.30	11.30 9.30	11.30 9.30	..
"	Electrical, Course XIV	Session ..	..	..	..	..
"	Telegraphy and Telephony	Spr. & Sum ..	..	..	..	..
Laboratory—	Heat	Session ..	..	..	..	..
"	Strength of Materials (c)	Winter 2—5	..	..	..	..
"	Electrical	Win. & Spr ..	..	..	..	..
"	Hydraulics (d)	Spr or Sum 2—5	..	..	..	..
Designing—	Mechanical	{ Win & Spr 10.30—1 Summer 10.30—1	..	..	2—5	..
"	Electrical ..	{ Win & Spr ..	2—5	..	2—5	..
ACCOUNTING	..	..	Session ..	10-30	..	..
COMPOSITION FEE:	$\text{£}50$ 10s. 6d.					

## FOURTH YEAR CIVIL ENGINEERING TIME TABLE.

SUBJECTS.	TERMS.	CLASS HOURS.				
		Mon.	Tues.	Wed.	Thurs.	Fri.
ENGINEERING—						Sat.
Lectures—Civil, Course X ( <i>a</i> )	..	Session ..	9.30	..	9.30	..
" " Course XI ( <i>a</i> )	..	Session 9.30—1.0	..	9.30	10.30	..
" " Course XV	..	Win. & Spr. ..	..	..	11.30	..
					& 2—4.30	
Exercises—Civil, Course XVI ..	..	Win. & Spr. ..	..	..	4.30	..
		Sp. & Sum ..	..	..	..	..
Designing—Civil, Course X ( <i>b</i> )	..	Session 2—5	..	..	..	..
Laboratory—Strength of Materials ( <i>b</i> )	..	Win. & Spr ..	..	..	..	..
" " ( <i>c</i> )	..	Winter 2—5	..	..	or 2—5	..
" " Hydraulics ( <i>d</i> )	..	..	..	..	2—5	..
" " Strength of Materials ( <i>e</i> )	..	Spr. & Sum 2—5	..	..	2—5	..
GEOLOGY—						
Lectures and Laboratory, Course II ..	..	Session ..	..	10.30—	..	10.30—
Field Work (Mapping) ..	..	Summer ..	..	12.30	..	12.30*
ACCOUNTING ..	..	Session ..	..	..	..	9.30—5 ..
COMPOSITION FEE:	£50 10s. 6d.					* Winter and Spring.

## FOURTH YEAR ELECTRICAL ENGINEERING TIME TABLE.

SUBJECTS.	TERMS.	CLASS HOURS.				
		Mon.	Tues.	Wed.	Thurs.	Fri.
ENGINEERING—						
Lectures—Mechanical, Course VI	Session 9.30	11.30 9.30	11.30 9.30	11.30 9.30	..	..
Electrical, Course XIV	Session ..	..	..	..	..	..
Telegraphy and Telephony	Spr. & Sum ..	..	..	..	..	..
Laboratory—Heat	Session ..	..	..	..	..	..
Strength of Materials (c)	Winter ..	..	..	..	..	..
Hydraulics (d)	Spring ..	..	..	..	..	..
Electrical	Session 10.30—5	..	..	..	..	..
Designing—Mechanical	Session ..	..	..	..	..	..
Electrical	{ Win. & Spr. Summer ..	2—5 2—5	2—5 2—5	2—5 2—5	..	..
ACCOUNTING	.. .. ..	Session ..	10.30	..	..	..

COMPOSITION FEE : £50 Ios. 6d.

## MECHANICAL ENGINEERING.

THE UNIVERSITY, EDGBASTON.

*Chance Professor* : F. W. BURSTALL, M.Sc. ; M.A. (Cantab.)  
M.I.C.E., M.I.M.E.

*Lecturer* : R. C. PORTER, M.Sc., A.M.I.C.E.

*Demonstrator* : (Vacant).

*Lecturer on Machine Design* : F. J. BROSCOMB, M.Sc.,  
A.M.I.M.E.

*Assistant Lecturer on Machine Design* :

JAMES GIBB STEWART, M.Sc.

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### The Chance Chair of Mechanical Engineering.

The endowment of this Chair forms part of a munificent gift of £50,000 by the late Sir James Timmins Chance, Baronet, the income arising from which is applied towards the support and equipment of the Mechanical Engineering Department. The annual income represents a sum of upwards of £1,450.

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The training throughout the course is largely practical and experimental in its character ; the University workshops, consisting of forge, foundry, machine shop and pattern-making shop, are very extensive, and equipped with the most modern tools.

In the later part of the course attention is directed to experimental work in the Engineering Laboratories, which are fitted with modern appliances for demonstration of the principles underlying engineering practice.

The University Power Station constitutes the heat engineering laboratory, in which the experimental work on steam and gas engines is carried out. The boiler room contains two water tube boilers of different patterns, two marine boilers, a locomotive boiler, a gas fired super-heater, four feed pumps of various designs, a feed heater, etc. One of the boilers is fitted with a mechanical stoker

for the purpose of comparison with ordinary hand-fired furnaces. The engine-room contains two high-speed steam engines of different designs, a triple-expansion marine engine, a steam turbine, four different types of condensers, a two-stage air compressor, two gas engines of different types, and an oil engine, which latter drives an ammonia refrigerating plant.

The size of the plant is sufficient for obtaining satisfactory results, the steam engines having a total output of 400 h.p., and the gas engines of 160 h.p., while the boilers can evaporate 25,000 lbs. of water per hour. Every engine has its own electric generator, and artificial loads are provided for absorbing the current when it is not required for lighting purposes. Attached to the Power Station is a Mond gas generating plant, large enough to gasify five tons of coal per day, and produce 30,000 c. ft. of gas per hour.

The whole University being dependent on this Power Station for lighting, heat, and power, students can learn by actual experience the work involved in running such a station.

On account of the importance and responsibility of working in this laboratory, no student who is not an undergraduate will be allowed to take a course there unless he previously passes a special examination to show that his general engineering knowledge is sufficient to ensure that he can do so with profit.

The Foundry is 50 feet long and 25 feet wide, and is equipped with an ample supply of boxes, tools, etc., besides an overhead travelling crane for handling heavy moulds, and a mortar mill for preparing the sand. A drop-bottom cupola provided with an electric blower is placed just outside the Foundry for melting the iron, while brass is melted in a gas-fired furnace; gas is also used for the core-drying stove.

The Drawing Office is capable of accommodating 120 students. It is 50 feet wide and 100 feet long, and furnished with suitable tables, each fitted with an independent

electric light, drawers and lockers for storing students' drawings and instruments, and modern vertical drawing tables for the use of senior students. It is also equipped with a set of sectional models of machine parts. Drawing boards of suitable dimensions are supplied for students, but the student must provide for himself a set of standard instruments and materials, particulars of which will be given by the Lecturer.

Adjoining the Drawing Office is the Blue Print Room, where students receive instruction in blue printing, and other methods of the rapid reproduction of drawings. It is fitted with a modern electric blue printing machine, developing baths, and drying arrangements.

The Machine and Fitting Shop together have a floor space of 7,500 square feet, and are equipped with modern plant, including standard lathes, grinding machines, horizontal and vertical milling machines, planing and shaping machines, and boring machines; and a large assortment of small tools, micrometers, limit gauges, etc. There are also in this department specially constructed tools for the demonstration of the use of high speed steels. Students must provide certain standard small tools, particulars of which will be given by the Instructors.

The Pattern Shop has a floor space of 2,500 square feet, and is equipped with standard hand and power wood working tools, including power, planing, and thicknessing machines, band, circular, and dimension saws, lathes, hand trimmers, and a large assortment of general hand wood-tools. Students must provide certain standard small tools, particulars of which will be given by the Instructor.

The Smithy is the same size as the Foundry, and contains twelve hearths supplied with air blast by an electric blower, and a three-hundredweight power hammer. Oil tanks, air blast, etc., are also provided for hardening and tempering tool steel.

## LECTURE COURSES.

First Year.

## Course I.

Mondays and Fridays, 12.30, throughout the Session.

WINTER TERM.

MR. BROSCOMB.

FEE: £4 4s.

*Elementary Principles of Machine Design.*—Drawing instruments; construction and use of scales; measuring appliances used in general engineering work; types of fastening, screws, bolts, nuts, etc.

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## SPRING AND SUMMER TERMS.

DESCRIPTIVE COURSE.

MR. PORTER.

During the Spring Term the Lectures will include the description of tools used in Engineering, and will be illustrated by a large collection of lantern slides.

For the Summer Term the Lectures will deal with steam boilers, steam engines, and gas and oil engines.

*Hand Tools for Wood and Iron.*—The plain lathe, engine lathe, slide rest, screw cutting, self-act and cross traverse, large lathes, special lathes (such as the capstan lathe), milling machine, planing machines, shaping machines, slotting machines, drilling machine, sensitive and multiple drills, grinding machines, boring machines.

*Types of Boilers and Boiler Fittings.*—Cornish, Lancashire, vertical, locomotive, marine, water tube, feed heaters, economizers, super-heaters.

*Steam Engine Parts.*—The cylinder, slide valve, piston stuffing box, kinds of packing, crosshead, guides, connecting rod, crank shaft, eccentric, bearings, lubrication, flywheels, cocks and valves.

*Types of Steam Engines*.—Mill engine, locomotive, marine, high speed, pumps and pumping engines, duplex pumps, feed pumps, centrifugal pumps.

*Gas and Oil Engines*.—Otto cycle, valves, governors, ignitors, Priestman oil engines, Hornsby oil engine Diesel motor.

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### Second Year.

#### Course II.

#### APPLIED MECHANICS.

Tuesdays and Thursdays, 12.30, and Saturdays at 10.30, throughout the Session.

FEE : £6 6s.

The lectures on Tuesdays and Thursdays will be on Graphics, according to the following syllabus :—

- (a) GRAPHICAL MENSURATION.—Areas of polygons, closed curves, and surfaces. Volumes.

*Vectors*.—General properties, rules for addition and subtraction, position vectors.

*Mass Centres*, by vectors and other constructions. Points, lines, surfaces, and solids. Moment of Inertia.

- (b) GRAPHICAL STATICS.—Derivation of vector and link polygons, and conditions of equilibrium using these. Supporting forces. Force diagrams for roofs and girders. Diagrams of bending moment and shearing force. Maximum bearing moments and shearing forces for rolling loads. Arches and chains in equilibrium. Problems in hydrostatics.

The Lectures on Saturdays will be on Solid Geometry :—points, lines, and planes, projection of solids, inter-penetration of solids, and development of surfaces, isometric projection.

Exercises, Tuesdays, 2.30 to 5

FEE : £3 3s.

**Third Year.****Course III.****MACHINE DESIGN.**

MR. BROSCOMB.

Wednesdays, at 11.30, throughout the Session.

FEE: £2 2s.

*General Principles.*—Properties of Materials. Straining actions. Stress, physical constants for ordinary materials, factors of safety, working stress for dead and live loads.

*Fastenings, Screws.*—Standard forms and dimensions of threads, multiple threaded screws. Screw bolts, studs, set screws

*Keys and Cotters.*—Forms of keys. Taper and dimensions. Gib and cotter joint. Special precautions to be taken with alternating stresses, methods of adjustment and fastening.

*Riveted Joints.*—Proportions of rivets, proportions of joints. Shearing resistance of rivets and tenacity of plates before and after riveting, calculation of pitch. Arrangements of groups of rivets in ties, etc. Graphic method of designing joints. Efficiency of joints.

*Boilers.*—Thickness of shell, junction of plates, stays, angles.

*Shafting and Couplings.*—Strength of shafts, twisting moment, and transverse loads, variation in twisting moment.

Calculations for shafts to resist twisting and combined bending and twisting. Mean and maximum twisting moments.

**COURSE IV.****HEAT ENGINES.****PROFESSOR BURSTALL.**

Mondays at 11.30, and Fridays at 10.30, Spring Term.

FEE : £2 2s.

The laws of heat, properties of air, specific heat, properties of steam, latent heat. The Carnot cycle for air and steam ; Rankine cycle for saturated and super-heated steam ; comparison of actual and perfect engines. Reversed heat engines on air, ammonia, and carbon dioxide.

Elementary theory of the internal combustion engines - calculation of temperature.

Testing of steam and gas engines, indicators, brakes ; working out of engine tests and analysis of results.

**COURSE V.****MECHANICAL ENGINEERING.****MR. PORTER.**

Tuesdays, at 10.30, and Fridays, at 9.30, throughout the Session.

FEE : £4 4s.

General theory of friction, static and kinetic ; applications to brakes, earthworks, bearings, pivots, transmission of power by belts, ropes, and friction couplings. Fluid friction ; applications to skin resistance of ships and bearings. Lubrication.

Teeth of wheels, cycloidal and involute. Helical teeth, bevel wheels, screw and worm wheels, skew bevel wheels ; epicyclic and variable gears.

Valve gears, Zeuner diagrams, cut-off valves, link gears, radial gears, trip gears.

Governors : isochronism, stability, and inertia. Watt governors, loaded governors, spring loaded governors, wheel governors.

## Fourth Year.

## Course VI.

MECHANICAL ENGINEERING.

PROFESSOR BURSTALL.

Mechanical and Electrical Engineers, Tuesdays, Wednesdays, and Thursdays, at 11.30.

FEE : £6 6s.

Advanced theory of the heat engine, entropy diagrams for saturated and superheated steam, behaviour of steam in the cylinder, clearance wire drawing, plotting of engine tests on the entropy diagram ; discharge of steam through nozzles, turbines. Theory of the gas and oil engine, properties of producer gases ; working out of gas engine tests.

Theory of the air compressor, different forms of compression, types of air motors, theory of reheating.

General principles of refrigerating machinery.

Transmission of power by air, water, gas. Cost of power. Effect of load factor.

Advanced machine design. Properties of stress and strain, composition of stresses, ellipse of stress, deflection and shear of beams, strength of cylinders, stability of chimneys, strength of crank shafts, connecting rods, effect of repeated loads, working loads.

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## LABORATORY COURSES.

## Third Year.

## HEAT LABORATORY.

## SPRING TERM.

The Class is divided into two sections, meeting respectively on Tuesdays and Thursdays, 2 to 5.

FEE: £4 4s.

The first two meetings will be devoted to lectures on Engine and Boiler Testing and the methods of deducing the results, casting up the heat balance, etc.

Tests will then be made on the Babcock, Niclausse, and locomotive boilers, and on the Willans, Belliss, and McLaren engines.

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## Fourth Year.

## HEAT LABORATORY.

*Mechanical and Electrical Engineers.*—Fridays, 9.30 to 5.

FEE: £12 12s.

The course will include the experimental study of all the forms of heat engines.

Attention will be directed to the steam consumption of the slow speed engines, the quick revolution engines, steam turbine, the economy of using superheated steam, the use of variable expansion and feed heating. Boiler trials will be made on the water tube and locomotive boilers with different kinds of coal.

Experiments on the efficiency of producers at different rates of working, and the influence of the regeneration will be made.

Comparison of slow speed and quick revolution gas engines, efficiency trials at various loads, influence of water cooling on barrel, cover, piston, exhaust valve, influence of scavenging.

Experiments can also be made on the Diesel oil engine and the refrigerating plant.

## MACHINE DRAWING COURSES.

## First Year.

## Course I.

Wednesdays, 2 to 5.

FEE: £3 3s.

After a few exercises to familiarise the student with the use of scales and drawing instruments, he proceeds to make drawings of simple joints and machine parts. These drawings, which are at first left in pencil, are in every case made from dimensioned freehand sketches, which the student himself makes from a model.

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## Second Year.

## Course II.

Thursdays, 2.30 to 5, and Saturdays, 11.30 to 1.

FEE: £5 5s.

The second year course is a direct continuation of that of the first year. The same methods are employed, but the models from which the drawings are made are more complex, and the students will eventually proceed to make drawings of complete machines, and also of parts of structures such as complex joints in girder or roof work, supports, foundations, etc.

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## Third Year.

## Course III.

## MACHINE DESIGN.

*Electrical Engineers.*—Mondays, 2 to 5, Winter Term.

FEE: £3 3s.

*Mechanical Engineers.*—Mondays, 2 to 5, Winter Term ; Fridays, 2 to 5, Session.

*Civil Engineers.*—Fridays, 2 to 5, Session.

FEE: £6 6s.

During the first and second years the student has only made drawings from existing machines, but in the third year his drawings are the result of calculations, wherever possible, deduced from strength considerations, and in other cases from empirical formulæ based upon approved practice. It is a course in practical design.

The course in general engineering will include lectures on machine design, and the drawings made will be based upon the substance of these lectures.

The course will include :—

*Fastenings.*—Bolts, nuts, keys, cotters, pipes and pipe joints, riveted joints, the Civil engineering students giving more attention to the joints that occur in constructional work, and the others to joints in boiler and similar work.

*Machinery of Transmission.*—Shafts, couplings, pulleys, bearings, belts, ropes, chains. Friction gearing spur and bevel wheels, helical and screw gearing.

After this may follow problems in which the strength considerations are more complicated, as in axles, journals, crank shafts, where bending and twisting moment diagrams are necessary.

In addition to the above, the Civil engineering students will take some simple designs bearing upon their special work, such as joists, trussed beams, bridge floors, culverts, and sewer sections.

Electrical engineering students will be required to make from patterns exact working drawings of details, and later on, calculations and working drawings of complete electrical apparatus and machinery.

**Fourth Year.****Course IV.****MACHINE DESIGN.**

*Mechanical Engineers.*—Mondays, 10.30 to 1, and Thursdays, 2 to 5, Session; Tuesdays, 2 to 5, Summer Term.

*Electrical Engineers.*—Thursdays, 2 to 5, Session.

FEE: £10 10s.

In the fourth year students largely specialise in their design work, the designs being based upon the special lecture courses.

The designs will be of a more complex character, and in all cases at least one complete design from specification and plans will be required.

The Mechanical and Electrical Engineering students will deal with the following:—

Cylinders for steam and gas engines. Valves and valve gears of various types. Governors, fly-wheels, etc. Complete engines and boilers. Factory arrangements. Machine tools.

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**WORKSHOP COURSES.**

The Workshops are open from 10 to 5, Saturdays 10 to 1, to those who wish to take up Special Courses, at a fee of £8 8s. od. per term, or £22 1s. od. per session, for full time, or £5 5s. od. per term, or £12 12s. od. per session, for half time in any Workshop.

The fee for any portion of one term is at the rate of £1 11s. 6d. per hour per week per session.

**MACHINE AND FITTING SHOP.**

*Instructors:* W. R. CHURCHWARD AND F. H. A. HALL.

In this department the course of instruction consists of a series of graduated exercises, both on machines and vice, arranged to familiarise the student with all cutting and fitting operations, and general methods of construction.

*Exercises.*—Vice work. Exercises in chipping and filing plane and curved surfaces, and finishing to gauge and surface plate.

*Machine Work.*—Plain turning in cast iron, wrought iron, steel, brass, screw-cutting, and chuck work, Milling, Planing, Shaping, and Drilling exercises. Finishing to Micrometer and limit gauge. General engineering practice.

#### PATTERN SHOP.

*Instructor:* V. O. CLARKE.

In this department the course of instruction consists of a series of graduated exercises, on lathe and bench, arranged to familiarise the student with cutting and jointing operations in wood, and general engineering pattern making. The students are only allowed to use the lathes and hand machines in this department, the other machines being dangerous; the uses of these machines are, however, fully demonstrated during the session.

*Exercises.*—Sawing, and parallel planing, halved, tenon, mortice, and dovetail joints, frame work. Lathe work and general engineering pattern making.

#### SMITHY.

*Instructor:* R. GODWIN.

Exercises in bending and shaping bar iron, welding, forging, rings and chains, forging chisels and tools, hardening and tempering of steel. Forging under the Power Hammer.

#### FOUNDRY.

*Instructor:* W. R. BATES.

Moulding in green sand, dry sand, and loam, core-making. Charging and working the cupola. Mixing, melting, and casting iron, brass, and gun-metal.

## CIVIL ENGINEERING.

THE UNIVERSITY, EDGBASTON.

*Beale Professor* : FREDERIC C. LEA, M.Sc. ; D.Sc. (Lond.),  
A.M.Inst.C.E., A.R.C.S.

*Lecturer* : W. NORMAN THOMAS, B.Sc. (Lond.), A.M.Inst.C.E.,  
A.M.Inst.M.E.

*Assistant Lecturers and Demonstrators* :

ROBERT C. PANTON, M.Sc. ; B.A., B.A.I.

PERCIVAL M. CHADWICK, M.Sc. ; B.Sc. (Lond.), A.C.G.I.

*Lecturer on Town Planning* :

RAYMOND UNWIN, F.R.I.B.A.

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### The Beale Chair of Civil Engineering.

In 1913 a fund was publicly subscribed in memory of the first Vice-Chancellor of the University (Alderman Charles Gabriel Beale, M.A.), and it was decided by the Committee of the fund to allocate a sum of between £10,000 and £12,000 to the endowment of the Chair of Civil Engineering in the University. £10,000 has already been paid over to the University, and it is expected that this sum will be considerably augmented.

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The courses of study in the department are carried on by lectures, workshop, drawing, laboratory exercises, and field work, the object being to give the student a thorough training, both theoretical and practical, in those subjects, a knowledge of which is necessary in the practice of the profession of Civil Engineering.

The Strength of Materials and Hydraulic Laboratories are in this department, and are equipped in the most complete manner for investigating the laws of elasticity and strength of materials and for experimental work in Hydraulics.

In the Strength of Materials Laboratory the equipment consists of the following apparatus :—A horizontal testing machine of 700,000 lbs. capacity for making tension, compression and bending tests on full-sized structural members up to thirty feet in length ; a 200,000 lbs. vertical testing

machine for tension and compression tests, and capable of testing beams sixteen feet long ; a testing machine of 112,000 lbs. capacity for tension, compression, and bending tests ; a 4,000 lbs. wire testing machine ; an impact testing machine ; a torsion machine, capacity 10,000 inch lbs. ; apparatus for measuring deflections of beams under various loads ; apparatus for testing to destruction brick and concrete arches ; complete apparatus for testing cements, mortars, bricks, sewer pipes, building stones, reinforced concrete beams and slabs.

In the Hydraulic Laboratory experiments are made on the flow of water in pipes and open channels, efficiency of turbines and pumps, forms of orifices, and effects of various kinds of resistances. The equipment consists of a steel tank four feet square and thirty feet high, for experiments on jets and flow of water under varying heads ; two steel measuring tanks, each of about two hundred and fifty cubic feet capacity ; a twenty h.p. duplex differential pump capable of dealing with 600 gallons per minute, and a maximum head of 250 feet ; a six-inch centrifugal pump ; a three-inch centrifugal pump ; a three-inch Rees-Roturbo pump ; a nine h.p. Pelton wheel ; a two h.p. double vortex turbine ; an eight h.p. Girard turbine, ; an eddy current brake ; a Froude water dynamometer ; hydraulic accumulator and three-throw pump ; weirs ; standard orifices and nozzles ; mercury gauges ; an 8-inch venturi meter ; a six-inch uniform meter and a two-inch standard meter.

In addition to the above equipment, two Experimental Channels, each 200 feet long, have been constructed outside the Laboratory.

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### LECTURE COURSES.

#### Second Year.

##### Course VII.

###### LAND SURVEYING.

MR. PANTON.

Wednesdays and Fridays, 2 to 5, throughout the session.  
FEE : £9 9s.

The work of this course is carried on throughout the year by lectures, field work, and drawing, the time devoted to it being six hours each week. The uses and adjustments of the various surveying instruments are discussed in the class room, and surveys are carried on in the field, while in the drawing office, plans, profiles, and contour maps are made.

Third Year.

Course VIII.

STRENGTH OF MATERIALS AND HYDRAULICS.

PROFESSOR LEA.

(a) *Strength of Materials.*

Mondays and Thursdays at 10.30 during the Winter and Spring Terms.

FEE: £4 4s.

In this course the following subjects are discussed in class :—(a) Tension. Behaviour of materials in tension, stress-strain curves, elastic limit, yield point, and breaking load. Effects of impact and repetition of stress. Strength of pipes and thin cylinders. (b) Compression. Short struts, strength of long columns, Euler's formula and formulæ derived from experiments. (c) Bending. Neutral axis, moment of resistance, moment of inertia, graphic methods. The design of beams and simple plate girders for various systems of loading. (d) Shear. Properties of shear, stress, and strain, shear modulus, and strength of materials in shear. (e) Torsion. Strength and stiffness of shafts.

(b) *Hydraulics.*

Mondays and Thursdays at 10.30 during the Summer Term.

A course of fourteen lectures in the third term, the subjects discussed being: General principles; the laws of flow of water and methods of measurement; hydraulic resistances; flow of water in pipes and channels.

**Course IX.****RAILWAY AND HIGHWAY ENGINEERING.****PROFESSOR LEA.****(a) Railway Work.**

Wednesdays at 10.30 and 2 to 5, and Saturdays at 9.30 during the Session.

FEE : £10 10s.

Preliminary and location surveys. Curves for railways, tramlines, roads, and sewers.

Bridges, roofs, and other structures. Considerations determining the choice of types for particular situations.

Setting out work, computations of quantities, excavation, tunnelling, permanent way, and construction and maintenance of streets and roads. In the drawing office the field notes taken during the survey carried out in the vacation are plotted, and detailed drawings are made of smaller railway structures.

**(b) Masonry and Foundations.**

The subjects discussed will be masonry materials, foundations, walls, culverts, arches.

**(c) Structural Details.**

Mondays, 2 to 5, throughout the Session.

This course is a series of exercises in design to supplement courses on strength of materials and masonry. In it will be worked out details of a design of a right masonry arch, including abutments, foundations, centres, and bill of quantities, and also details and working drawings of a roof truss and a simple highway bridge.

**(d) Railway Field Work and Drawing.**

MR. THOMAS AND MR. PANTON.

Three weeks in Summer.

FEE : £5 5s.

The field work of this course is carried out in three weeks of the long vacation. During this time the work is conducted from a camp, and consists of preliminary and location surveys for a short line of railway. The work is carried on systematically and under strict supervision, and each student is required to work nine hours per day, the instrument men being required in addition to keep maps and profiles showing each day's progress.

Students wishing to take this Course must apply to Professor Lea on or before the first Monday in May, as the number of students admitted to the course is limited.

#### Fourth Year.

##### Course X.

##### THEORY OF STRUCTURES AND DESIGNING.

PROFESSOR LEA.

*(a) Theory of Structures.*

Tuesdays and Thursdays, at 9.30, throughout the Session.

FEE : £4 4s.

A course of fifty lectures in the fourth year. The subjects discussed are :—Pressure of earth, ellipse of stress, design of retaining walls. Masonry dams, tunnels. Design of plate girders and riveted and pin-connected trusses. Continuous girders, cantilevers, swing bridges, metal arches, with and without hinges. Influence Diagrams. The work of these lectures is closely followed by that of the next course.

*(b) Designing.*

Mondays and Tuesdays, 2 to 5.

FEE : £12 12s.

In this course the instruction given in (a) is supplemented by work in the drawing office. Students are required to make complete designs for the following engineering structures :—Winter Term, retaining walls and masonry arch ; Spring Term, steel railway bridge ; Summer Term, steel arch hinged at crown and springings. Besides these designs numerous graphical exercises illustrating the work of the lectures will be required.

**Course XI.****HYDRAULIC ENGINEERING.**

MR. THOMAS AND MR. CHADWICK.

FEE: £10 10s.

*(a) Hydraulic Engineering.**Lectures.*—Wednesdays at 9.30 and Thursdays at 10.30.*Designing,* Mondays, 9.30 to 1, throughout the session.

The work of this course is carried on by lectures and drawing, and treats of the following subjects :—

- (i) Flow of water in pipes ; sources, storage, and filtration of water ; details of reservoir construction ; distribution of water.
- (ii) Flow of water ; open channels ; canals and rivers ; river regulation ; irrigation.
- (iii) Principles of drainage ; sewers and sewerage ; various systems of sewage disposal.
- (iv) Hydrographic surveying ; tidal phenomena ; waves and coast defence.

In connection with this course measurements are made on the flow of some river during the Easter vacation.

*(b) Hydraulic Power Engineering.*

Wednesdays at 9.30 and Thursdays at 10.30, Summer Term.

Utilisation and transmission of water power. Pumps water wheels and turbines.

**Course XII.****CITY AND GEODETIC SURVEYING.**

MR. PANTON.

Saturdays, 9.30 to 12.30. Spring and Summer Terms.

FEE: £3 3s.

The course consists of a series of exercises in the field and drawing office, carried out by students in the fourth year.

**Course XV.****CIVIC DESIGN AND TOWN PLANNING.****MR. RAYMOND UNWIN.****(a) Lecture Course.**

Thursdays at 11.30 during Winter and Spring Terms.

**FEE : £1 1S.****PART I.****UNITS OF WHICH THE PLAN IS COMPOSED.****LECTURE.**

1. Parts of which plan will be composed ; Town Planning and the Housing Problem. First unit, the cottage dwelling, minimum accommodation and size, various types.
2. Aspect of dwellings in relation to road direction. Length of road frontage required for different types of houses and different aspects. Combining cottages into groups and providing access to gardens.
3. Size of plot, size of house and cost of land. Limitation of number of houses to be built to the acre, and its effect on cost of development and of plot. Effect of reduced density of population on public health, social welfare and amenity.
4. The Workshop and Factory ; their relation to the dwellings ; their requirements, services, aspects, &c. The Market, Shop, or Commercial Building ; conditions of locality, site, and access, as affecting the efficiency of business. Sites for Public Buildings.
5. The open space, playground, recreation field, parkway, country reservation, definite purpose, desirable character and location of each.
6. The road or means of communication between the units, ancient types, basis of width, requirements of traffic, different types of highway.
7. Construction and cost of different types and widths of road, also of sewers and surface water drains.
8. Planning of roads in relation to contours ; costs of different methods and effect on cost of adjacent buildings, methods suitable for steep land.
9. Site planning ; the disposition of the units on small areas of land, spacing of roads, the distribution of buildings and their architectural grouping in relation to the site ; and the proper influence of architectural considerations on the site plan.
10. Cost of estate development ; how to estimate the financial results of a proposed scheme. Examples of site planning.

## PART II.

## TOWN PLANNING.

## LECTURE.

1. The relation of the Site Plan to the Town Plan. Necessity for town extension plan to be based on careful study of existing town. Civic Survey, including topography of region, survey of existing railway, waterway and other traffic facilities, of drainage, power, light, water and other services.
2. The elements of design as applied to town planning. Unity of effect, variety, relation, and proportion of the parts, repetition and rhythm, composition.
3. The Civic Centre and other minor centres; their social, economic, and architectural importance, and their proper treatment.
4. The main framework of roads, its character, its relation to the probable lines of traffic and to the main centre. The Secondary series of roads, their relation to the main roads and minor centre points.
5. Road Junctions and Crossings; their arrangement to facilitate traffic and to afford opportunities for good architectural treatment.
6. Different styles of town planning which have developed in other countries.
7. The Town Extension Plan; the principles on which the growth of towns should be regulated. Garden City ideas and their application to suburbs. The appropriation of lands for special purposes.
8. The Plans required under the Housing and Town Planning, etc., Acts, 1909, and their preparation. Study of schemes under the Act.
9. Some examples of modern Town Planning Schemes carried out or projected in other countries and the lessons which may be learnt from them.
10. Summary of the course and conclusions.

(b) *Office Work.*

Thursdays, 2 to 4.30 during Winter and Spring Terms.

FEE : £4 4s.

In this course problems met with in the Practice of Site Planning and simple Problems in Town Planning will be worked out in the Drawing Office, and Surveys for Town Planning will be made in the field.

## Course XVI.

### SOCIAL ORIGINS AND ECONOMIC BASES OF TOWNS.

MR. RAYMOND UNWIN.

Thursdays at 4-30, during the Winter and Spring Terms.

FEE: £1 1s.

#### PART I.

##### THE HISTORY OF TOWN PLANNING AND ITS RELATION TO ARCHITECTURE.

**LECTURE.**

1. Town Planning an ancient art; phases of expression evolved at different periods.  
The contribution of Egypt, Assyria, and Persia.
2. The Grecian Period.
3. Rome and its plan.
4. The influence of Rome and the Roman Camp.
5. The Mediæval Town and its planning.
6. The Period of the Renaissance as exemplified in Paris and France.
7. As exemplified in Berlin and Germany.
8. As exemplified in Italy and Scandinavia.
9. The development of the American Town Plan.
10. Summary of the principles which should guide the development of an art of town planning in England.

#### PART II.

##### SOCIAL ORIGINS AND ECONOMIC BASIS OF TOWNS.

1. Individuality of towns due to different forms of civic activity combined with varying character of location, may be classified as:—
  - (a) Industrial, mainly depending on productive activities as Agricultural, Fishing, Mining, Quarrying, or Manufacturing Town. Examples.
2. (b) Commercial, mainly depending on exchange and distribution, as Market Town, Port, or Railway Centre.
- (c) Administrative, mainly depending on official life, as Capitals, County Towns, and also Military, Naval, Religious, and Educational Centres.

**LECTURE.**

(d) Social and Recreative, chiefly depending on a permanent or visiting population which spends incomes earned elsewhere. Such as Residential Towns, Seaside and Inland Health and Pleasure Resorts.

Each class of town has a character due to its origin and requires a type of development suited to its special character.

3. The Economics of town development; distribution of population and concentration of business, as affecting land values and rent, and the control of the use of land in the public interest.
  4. What a comprehensive scheme of town planning may do to conserve resources, to realise opportunities and to help industry and commerce.
  5. What such a scheme may do to improve the surroundings of the people's dwellings.
  6. What such a scheme may do to promote culture and recreation.
  7. The Housing and Town Planning, etc., Act, 1909. Powers of Local Authorities and Liability for Compensation.
  8. Procedure Regulations and the opportunities they afford to owners, public and professional bodies, and individuals, to influence schemes.
  9. What a Town Planning Scheme may include in addition to the plan.
  10. Summary of the limitations which it is desirable to respect in Town Planning.
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## LABORATORY COURSES IN STRENGTH OF MATERIALS AND HYDRAULICS.

### Third Year.

MR. THOMAS AND MR. CHADWICK.

*(a) Elementary Course in Strength of Materials.*

Tuesdays, 2 to 5, Winter Term.

FEE : £3 3s.

This Course is arranged for all engineering students, and the following series of experiments is made ; measurements of centrifugal force, energy of rotation, the laws of friction and the efficiency of machines, deflection of beams, wire testing, simple tests of mild steel and cast iron cement testing.

**Fourth Year.****MR. THOMAS AND MR. CHADWICK.****(b) Testing of Masonry and Timber.**

Wednesdays, 2 to 5, during Winter and Spring Terms.

FEE : £6 6s.

This course is arranged as a series of laboratory exercises for the course on masonry and foundations. A regular series of tests of cement is made according to the British and foreign standards, and concrete, bricks, building and paving stone, and timber are also tested.

**(c) Advanced Laboratory Course in Strength of Materials.**

Mondays, Wednesdays, or Fridays, 2 to 5, during the Winter Term.

FEE : £3 3s.

This is a short course arranged for all engineering students, and in it the following work is carried on : systematic tests of various metals, tension and investigation of the elastic properties, compression tests, transverse tests of steel, cast iron and wood, strength and elasticity of various metals in torsion, impact tests.

**(d) Laboratory Course in Hydraulics.**

Mondays, Wednesdays, or Fridays, 2 to 5, Spring or Summer Term.

FEE : £5 5s.

Flow of water through orifices and weirs ; tests of meters ; measurements of hydraulic resistance, pipes, bends, valves, efficiency tests of various types of pumps and motors.

*(e) Advanced Laboratory Course in Strength of Materials.*

Fridays, Spring Term, and Mondays, Summer Term, 2 to 5

FEE: £5 5s.

This additional course, arranged for civil engineering students, is as follows: Investigation of influence of the proportions of a specimen on its strength and elongation in tension. Effects of rate of loading. Compression of wood, stones, and concrete. Tests of struts. Hardness tests by indentation. Reinforced concrete joists and slabs. Concrete and brick arches.

*(f) Elementary Course in Strength of Materials for Metallurgists.*

Tuesdays, 2 to 5, Summer Term.

FEE: £5 5s.

This is a special course of laboratory experiments on the properties of engineering materials and the methods of testing in common use.

Apparatus is provided for the bending of beams loaded in various ways, and for testing wires and cement. The 50-ton and 100-ton testing machines will be used for the usual commercial tests in tension, compression, and bending, also testing in tension iron and various steels, and investigating the effects of heat treatment. Chains and ropes will be broken in tension, metals, stones, and bricks in compression, and standard cast iron bars by bending. Torsion tests will also be made.

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## ELECTRICAL ENGINEERING.

# THE UNIVERSITY, EDGBASTON.

*Professor : GISBERT KAPP, M.Sc. ; D.Eng.h.c., M.Inst.C.E.,  
Past President Inst.E.E.*

*Lecturers* : { E. J. KIPPS, M.Sc. ; M.Inst. E.E.  
T. F. WALL, D.Sc. (Vic.), D.Eng., A.M.Inst.  
C.E. ; A.M.Inst.E.E.

*Assistant Lecturer and Demonstrator: (Vacant).*

The course for Electrical Engineering students is the same as that for Mechanical Engineering students, for the first two years, and only differs in the third and fourth years in the increased time spent in the electrical engineering laboratory and on the design of examples of electrical machinery, apparatus, and installations.

The Electrical Engineering Laboratory has two Sections, one for the Junior and one for the Senior students. The Junior Laboratory is on the upper ground floor, and covers an area of 3,500 sq. ft. Current (C.C., A.C.. and Three Phase) is available at all the working tables, and besides the usual apparatus for the measurement of resistance, current, electromotive force, power, capacity, inductance, etc., special appliances designed and made in the department are provided for the investigation of the magnetic and electric properties of materials used in engineering. One room is fitted for work with ballistic galvanometers, and two other rooms are exclusively used for photometric work. One of these is fitted up with a Bunsen and "Flicker" photometer for glow lamps, and the other with a specially designed photometer for large arc lamps with Brodhun-Lummer photometer head. There is also a large collection of various types of electricity meters used in the commercial distribution of electricity, so that students can test them for accuracy in practical work. Parts of machines and apparatus of various kinds are exhibited in show cases.

The Senior Laboratory is on the lower ground floor, and covers an area of 7,000 sq. ft. It receives power in the form of 110 V.C.C. and 200 V. 30 frequency three-phase current from the University power station. As current of other kind is also required the machinery installed is used not only for testing, but also to make the necessary transformations in the manner of a sub-station such as is practically used in the commercial supply of electricity.

There are also two storage batteries, one for 220V. and 600 A.H., and one for 12 V. and 1200 A.H. capacity. These are placed in the cellar under the laboratory. The equipment consists of :—

A 30 KW rotary converter, with auto transformer and adjustable booster for converting the three-phase supply into C. current of 220 V.

A C.C. motor generator for supplying C. current at any voltage up to 25 V. This set is fitted with an automatic regulator, so that when inserted into the discharge circuit of the battery, it keeps the voltage of this circuit nearly constant, whatever may be the demand for current at any time.

A pair of 30 KW C.C. dynamos coupled mechanically. From this set any voltage up to 500 V. may be obtained.

A 30 KW C.C. booster, taking 110 V. current from the power station, and producing the necessary voltage for charging the battery. A 30 KW C.C. to three-phase motor generator, taking on the motor side 220 V.C.C. current, and delivering on the generator side three-phase current at 50 frequency, and any voltage up to 250 V. A 30 KW motor generator, adapted for variable speed transforming C.C. into three-phase current or *vice versa*. The three-phase armature is arranged so that either mesh or star coupling may be used, the maximum voltage in the latter case being 300 V. A set of two C.C. motors and two two-phase alternators with their shafts in line and arranged for mechanical coupling by magnetic friction clutches. From these machines two-phase currents at a variable frequency up to 50 can be obtained. One of the

alternators is fitted with a Joubert disc for the determination of the wave form.

All these machines are provided with special terminal and switch boards, to which their internal circuits are connected, so that students in making tests attach the instruments not to the machine itself, but to the terminals on the board, which are suitably labelled.

At the north end of the laboratory there are several test beds for machines of various kinds, among which may be mentioned three-phase non-synchronous motors, a C.C. crane motor, a tramway motor, a Winter-Eichberg single-phase motor, a Deri single-phase motor, a Schüler single-phase motor, a Rosenberg train lighting dynamo, a Westinghouse converter, and a special set of induction machines arranged to produce any desired phase difference between current and e.m.f. There are also a number of transformers. For the testing of motors, brakes (both of the eddy current and mechanical type) are used. For the testing of generators there are available banks of lamps capable of taking up a maximum power of 30 KW and a water load capable of taking current representing power up to 50 KW.

At the north end of this laboratory there is also a small workshop, in which the special apparatus for lecture demonstrations and apparatus for special tests are made. The laboratory is fitted with two travelling cranes.

For the purpose of verifying the accuracy of the commercial instruments used by the students in testing, there is fitted up at the south end a standardising room with potentiometer, having an accuracy of 1 in 100,000. In the same room is also an oscillograph.

All the laboratory circuits are connected with this room, so that any machine may be brought into connection with the oscillograph, or any instrument used outside may be connected with the standard in this room without having to be moved bodily. Telephonic communication is provided between the standardising room and the working places in the laboratory.

Advanced students are encouraged to take up some line of investigation of technical interest, for which the above equipment and a collection of standard instruments are available.

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### LECTURE COURSES.

Second Year.

Course I A.

MR. KIPPS.

Saturdays at 9-30 throughout the Session.

FEE : £2 2s.

This course is intended to serve as an introduction to Electrical Engineering, and to the more advanced Courses XIII and XIV, which are attended by third and fourth year students. The lectures are descriptive in character, and deal with the fundamental principles underlying the applications of electricity to engineering. The action and construction of various types of electrical machinery and apparatus are explained. The course follows the subjoined syllabus.

*Electro-chemical properties* of the electric current and their uses in standard measurements, primary and secondary batteries.

*Ohm's Law* and its applications to the measurements made in electrical testing.

*Electrical energy and power*, electric heating.

*Cables*, their construction and use in electrical distribution.

*Magnetism and Electro-magnetism* and the principles underlying the construction of electrical measuring instruments, such as galvanometers, ammeters, etc., etc.

*Electro-magnetic Induction* and the principles of action and construction of generators and motors.

*Electrical production of Light*, glow lamps, and arc-lamps.

## Third Year.

## Course XIII.

ELECTRICAL ENGINEERING.

PROFESSOR KAPP.

*Civil, Electrical, and Mechanical Engineers.*—Tuesdays, Thursdays and Fridays at 11.30.

FEE: £6 6s.

One hour a week is devoted to the working out of simple electrical engineering problems.

*Principles of Electric and Magnetic Action.*—Elementary theory of potential. Lines of force. Electric and magnetic fields. Attractive force of magnets. Energy of magnetic field. Force between current and magnet and between two currents. Exciting force and resulting field. Applications to dynamos. Electrostatic attraction. Theory of electric images and its application to the determination of the capacity of aerial lines and cables. Absolute system of measurement. Relation between the electrostatic and electro-magnetic systems. Practical units. Induced E.M.F. and application to dynamos.

*Continuous Currents.*—Generation by mechanical, thermal, and chemical means. Energy of an electric circuit. Power of a circuit. Varying currents. Time constant.

*Alternating Currents.*—Vector diagrams. Generation by mechanical means. Frequency. Effective value. Form factor. Power. Power factor. Wattless currents. Self-induction and impedance. Application to choking coils. Natural frequency.

*Materials.*—Resistance. Specific resistance and temperature co-efficient of conductors. Heating of single conductors and coils. Magnetic quality of iron. Hysteresis and eddy current losses. Insulating materials. Construction of resistances.

*Measurements.*—Standards of resistance and E.M.F. Test-room instruments. Potentiometer. Shunted ammeters. Electricity meters. Ballistic galvanometer. Fluxmeter. Tests for conductivity, insulation, magnetic flux, self-induction and capacity. Magnetic tests of iron. Photometry.

*Continuous Current Dynamos.*—Simple forms of armature windings. Calculation of voltage. Field magnet windings. Compounding. Characteristics. Regulation. Motors for special purposes. Losses in dynamos. Efficiency.

*Alternators.*—Armature winding for single and poly-phase currents. E.M.F. curve. Calculation of effective E.M.F. Characteristics. Transformers. Elementary theory of synchronous and induction motors.

*Installations.*—Small isolated plant. Use of Batteries. Parallel running of continuous current dynamos. Switchboards. Arrangement of generating plant. Short distance power transmissions by direct current. Cost of working.

#### Fourth Year.

##### Course XIV (i).

ELECTRICAL ENGINEERING.

PROFESSOR KAPP.

Mondays, Tuesdays, Wednesdays, and Thursdays, at 9.30.

FEE : £6 6s.

One hour a week is devoted to the working out of more advanced electrical engineering problems.

*Design of Continuous Current Dynamos.*—Armature windings. Commutation. Field winding. Commutating coils. Heating and ventilation. Losses. Efficiency and its experimental determination. Mechanical construction. Types for special purposes.

*Design of Alternators and Transformers.*—Determination of the E.M.F. and current curves. Harmonic analysis. Armature winding. Heating and ventilation. Losses. Efficiency. Characteristics. Short circuit current. Drop. Mechanical construction. Parallel running. Hunting. Influence of damping coils. Theory of transformers. Core and shell types. Inductive and ohmic drop. Methods of cooling. Special designs for large output and high pressure. Mechanical construction.

*Design of Alternating Current Motors.*—Synchronous Motors and Converters. Induction Motors. Commutator Motors.

*Continuous and Alternating Current Circuits.*—Influence of capacity and self-induction. Resonance. Free and damped oscillations. Lightning protection. Protection against disruptive discharges. Design of long transmission lines.

*Central Stations and Distribution of Current.*—Selection of system. Arrangement of machinery and switch gear in Power House. Use of batteries. Boosters. Sub-stations. Electrical tramways and railways. Feeders and distributing mains. Cost of working. Meters and tariffs.

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#### Course XIV (ii).

#### TELEGRAPHY AND TELEPHONY.

DR. WALL.

Wednesdays, at 10.30, Spring and Summer Terms.

FEE : £2 2s.

Batteries, needle instruments, simplex, duplex, and multiplex working, automatic telegraphy, submarine telegraphy, wireless telegraphy, microphones, receivers, telephone exchanges. (The lectures on telegraphy and telephony form a special course open to all students, but are not compulsory.)

## ELECTRICAL LABORATORY COURSES.

## Third Year.

## Course XIII (A).

PROFESSOR KAPP AND DR. WALL.

*Electrical Engineers.*—Thursdays and Fridays, 2 to 5.

FEE: £12 12s.

*Civil and Mechanical Engineers.*—Thursdays, 2 to 5.

FEE: £6 6s.

*Mining Students.*—Thursdays, 2 to 5.

FEE: £6 6s.

Magnetic field of currents and magnets. Carrying capacity of wires. Fuse testing. Heating of wires and coils. Exact comparison of electrical instruments. Measurement of resistance and conductivity. Insulation resistance. Resistance of armature windings. Magnetic testing. Intensity of magnetic field in air-gaps of machines. Forces on currents in magnetic fields. Torque of motor at rest. Tests on arc and glow lamps. Meter testing and calibration. Capacity of storage cells at different rates of discharge. Tests on the characteristics of different kinds of continuous current motors and dynamos. Efficiency. Separation of losses in electrical machinery. Speed regulation. Alternating currents, elementary tests. Power factor. Use of Watt-meter.

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## Fourth Year.

## Course XIV (A).

PROFESSOR KAPP AND DR. WALL

*Electrical Engineers.*—Mondays, 10.30 to 5, Session.

FEE: £12 12s.

*Mechanical Engineers.*—Wednesdays, 2 to 5, Winter and Spring Terms.

FEE: £6 6s.

The work in the Laboratory is arranged to give students an opportunity of testing practically the conclusions arrived at theoretically in the corresponding lectures. Students make accurate measurements on machines, transformers, batteries, cables and instruments, the tests being arranged to correspond with the requirements of practical work.

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### DRAWING AND DESIGNING.

#### Third Year.

##### Course XIII (B).

PROFESSOR KAPP AND MR. KIPPS.

Mondays, 2 to 5, Spring and Summer Terms, and Wednesdays, 10.30 to 11.30, Session.

FEE: £3 3s.

In the Winter Term the work is the same as for Mechanical Engineers (Course III), and during the Spring and Summer Terms students make drawings of parts of electrical machinery and apparatus.

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#### Fourth Year.

##### Course XIV (B).

PROFESSOR KAPP AND MR. KIPPS.

*Mechanical Engineers.*—Tuesdays, 2 to 5, Winter and Spring Terms.

FEE: £4 4s.

*Electrical Engineers.*—Tuesdays, 2 to 5, Winter and Spring Terms. Tuesdays and Wednesdays, 2 to 5; Saturdays, 10 to 1, Summer Term.

FEE: £6 6s.

The work done in this course consists in the calculation, design and preparation of working drawings of generators, motors, transformers, and other apparatus to definite specifications, and the design of complete installations.

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## COMBINED ENGINEERING COURSE.

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The objects of this Course are to give a general and practical treatment of the subject so far as is required in works practice.

The subject of Engineering will rank as a single subsidiary subject, and will take up in all, if possible, twelve hours per week during one year, three hours of which will be devoted to Engineering Drawing. The remaining nine hours will be spent in lectures and laboratory practice in the Power Station, and in the Strength of Materials Laboratory.

### SYLLABUS.

**POWER STATION.**—*Lectures*, Mondays and Fridays at 11.30 during the Spring Term. *Laboratory*, Tuesdays, 2 to 5, during the Winter Term. The testing and management of various types of boilers. The study of fuels for power purposes. The analysis of flue gases, and the measurement of high temperatures. The testing of steam engines and dynamos, and the comparison of high and low speed types. The testing of gas and oil engines, and the study of producers using both bituminous and anthracite coals. The testing of refrigerating plants of the ammonia type, and the testing of air compressors. The production and properties of liquid air. The flow of gases in pipes, and the use of anemometers, fans and blowers.

**DRAWING.**—Three hours weekly at times to be arranged. The making of drawings in plan, elevation, and section, examples being chosen from the general type of machinery likely to be found in chemical works, such as shafting, couplings, pulleys, pumps and steam plants. Towards the end of the Course attention will be devoted to the design of simple structures which are built up from plates, angles, and tees, such as tanks, holders, girders, etc.

STRENGTH OF MATERIALS AND HYDRAULICS.—*Lectures*, Mondays and Thursdays, at 10.30. *Laboratory*, Tuesdays, 2 to 5, during the Summer Term. In the Strength of Materials Laboratories, tests will be made on the various kinds of metals that are used, such as steel, wrought iron, cast iron, bronzes, and white metals in tension, compression and shear, together with impact tests. The testing of cements and mortar, and the study of reinforced concrete. In the Hydraulic Laboratory the testing of pumps, turbines, the flow of water through pipes, the measurement of large volumes of water, and the general properties of fluids.

FEE for the Course: £12 12s

Under normal conditions of a Degree Course in Chemistry, with Engineering as a subsidiary subject, the Engineering should be taken in the first year after Intermediate, but this arrangement is subject to alteration by special permission of the Faculty of Science.

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## METALLURGY.

THE UNIVERSITY, EDGBASTON.

*Feeney Professor:* THOMAS TURNER, M.Sc., A.R.S.M., F.I.C.

*Lecturer and Instructor in Assaying:*

O. F. HUDSON, M.Sc., A.R.C.S.

*Assistant Lecturer and Demonstrator:* (Vacant).

*Special Lecturer in Metallography:* O. F. HUDSON, M.Sc.

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### The Feeney Chair of Metallurgy.

The endowment of this chair was provided for by a legacy of £20,000 bequeathed to the University by the late John Feeney, Esq., towards the encouragement and equipment of the Metallurgical Department. The annual income represents a sum of nearly £700.

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The Department provides instruction for those engaged in or connected with the staple metal industries of this country, and also trains men who propose to follow a metallurgical career in the colonies or in any other part of the world.

The courses of study are intended to meet the requirements of—

1. Metallurgists, who devote the greater part of their time to metallurgy.
2. Metallurgical chemists, who specialise in chemistry.
3. Metallurgical engineers, who devote most of their time to engineering.
4. Mining and Geological students, who follow the courses prescribed in their respective departments.
5. Dental students.
6. Others interested in Metallurgy.

The courses of study include lectures, laboratory teaching, practical work in the smelting laboratories, and visits to works.

The instruction is given at the new buildings of the University, the postal address of which is The University, Edgbaston, Birmingham.

The buildings occupied by the Metallurgical Department are in two separate portions, one situate in the main building, and the other in a self-contained block near the power house. The former comprises the lecture rooms, laboratories, and museums, while the latter includes the smelting laboratories. In the main building about 20,000 square feet of floor space are devoted to metallurgy. The department is chiefly placed on the main ground floor, on which there is a spacious and well-lighted suite of sixteen rooms, including elementary and advanced laboratories capable of accommodating sixty students at one time; separate dry assay and balance rooms; a lecture theatre, and advanced class room and library. There are also rooms devoted to ore sampling, metal preparing, pyrometry, metallography, and electro-metallurgy; together with chemical stores, Professor's office, and Lecturers' private room. This portion covers 13,000 square feet, while upwards of 6,000 square feet on the first floor is devoted to museum and similar purposes. The separate smelting laboratory includes a steel section with a two-ton new form Siemens' furnace with electric hoist, crane, ladle, ingot pit and boiler. There is also a section of similar area devoted to the smelting of metals other than iron and steel, the plant in which includes a hand-fired reverberatory furnace, a Brückner roaster, a water jacketed blast furnace, a small bessemer converter, a cupellation furnace, a cyanide plant for gold ores, a chlorination equipment, and a filter press plant. Smaller rooms are employed as brass and steel foundry, and as an electric smelting laboratory respectively. Immediately adjacent are the power house, the iron foundry, the smiths' shop, and the Mond gas plant of the Engineering Department.

## LECTURE COURSES.

## Course I (Junior).

A course of twenty lectures will be delivered on Saturdays at 10 during the Winter and Spring Terms. During the Winter and Spring Terms a Practical Class is also held in the Laboratory on Saturday mornings from 11 to 1 for Dental students, or on Thursdays from 2 to 5 for others throughout the Session. This Course is intended to serve as an introduction to Metallurgy, and will also cover the ground required by students of Dentistry.

## Syllabus.

## PART I.

Physical, Mechanical, Chemical, and Electrical Properties of the Common Metals. Properties of Alloys, Melting, Casting, and Working of Metals. Varieties of Furnaces. Furnace Materials, Slags and Fluxes. Metallurgical Terms. Fuel. Gaseous Fuel. Gas Furnace.

## PART II.

Preparation, Properties, and Uses of the following :—

Gold, Silver, Mercury, Copper, Tin, Zinc, Lead, Iron, Platinum, Iridium, Palladium, Cadmium, Bismuth, Aluminium, and Nickel, together with their chief alloys, and amalgams.

FEE for the Course : Lectures and Laboratory, £3 3s.

TEXT BOOKS RECOMMENDED.—HUNTINGTON AND MACMILLANS' *Metals* (Longman); SMITHS' *Dental Metallurgy* (Churchill).

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## Course II (General).

## PROFESSOR TURNER.

This Course is intended to give a general outline of the subject, and is attended by Metallurgical, Mining, and Engineering students in their second year. The Lectures are delivered on Tuesdays and Thursdays at 11.30 throughout the Session.

## Syllabus.

- (a) INTRODUCTORY.—Physical, Mechanical, and Chemical Properties of Metals. Nature of Alloys. Metallurgical

Terms and Processes. Classification of Furnaces. Furnace Materials. Composition of Fire-Clay. Manufacture and testing of Fire-Bricks and Crucibles. Slags and Fluxes. Composition and character of Slags. Utilization of Slag. Calculation of Furnace Charges. Physical and Chemical properties of Fuel. Principles of Combustion. Calorific Power and Intensity. Calorimeters. Pyrometers and Pyrometry. Gaseous Fuel, Preparation of Coke. Charcoal, and Patent Fuels. Electric Furnaces.

- (b) IRON AND STEEL.—Composition, Characters, and Preliminary Treatment of Iron ores. The Blast Furnace. Details of Construction and Working. Furnace Burdens. Subsidiary Appliances. Theory of the Blast Furnace. Chemical and Mechanical Properties of Cast Iron. Foundry Practice. Manufacture of Wrought Iron. Chemistry of the Puddling Furnace. Properties of Wrought Iron. Manufacture and Properties of Steel. Puddled, Blister, Shear, and Crucible Steel. Bessemer and Siemens' Steel. The Basic Process. Other Important Steel Processes. Chemical composition and Mechanical testing of different varieties of Iron and Steel.
- (c) METALS AND ALLOYS.—Production, Properties, and Principal Alloys of Gold, Silver, Copper, Tin, Lead, Zinc, Aluminium, and Nickel. Heat Treatment of Alloys. Corrosion. Principles of Electro-Metallurgy. The more important Electro-Metallurgical Processes. The Microscopic Examination of Metals.

FEE for the Course : £4 4s.

*Metallography*.—A course of lectures will be delivered on Mondays at 4.0 during the Summer Term, by Mr. Hudson ; these should be attended by all Metallurgical students in their second year. External students may also attend on paying a fee of 10s. 6d.

TEXT BOOKS RECOMMENDED.—ROBERTS-AUSTEN'S *Introduction to Metallurgy* (Griffin) ; TURNER'S *Iron* (Griffin); HUDSON AND BENGOUGH'S *Iron and Steel* (Constable) ; ROSE'S *Precious Metals* (Constable) ; DESCH'S *Metallography* (Longmans).

It will be necessary to assume that students taking this Course possess some knowledge of Chemistry and Physics.

**Course III (Senior).**

A Course of about sixty Lectures for senior students is given each session. The class will meet on Wednesdays at 12, and on Fridays at 10.30, also on Saturday mornings, during the Summer Term only, at 10.

**PART I—MR. HUDSON.**

This portion of the Course will be delivered on Wednesdays and Fridays. The subjects to be dealt with may be somewhat modified to meet the requirements of the students who attend ; the general outline will be as follows :—

1. Fuel ; classification and properties, calorimetry, pyrometry, coke ovens, gas producers. Refractory Materials ; slags, their properties and constitution ; calculation of furnace charges.
2. General properties of metals and alloys. Constitution of alloys. Microscopic examination of metals and alloys. Effect of heat-treatment.
3. Steel ; influence of impurities, segregation, blowholes, fluid compression, heat treatment. Microscopic examination ; special steels, manganese, nickel, chromium, vanadium, tungsten steels, etc., High speed tool steels.
4. Metallurgy of gold and silver ; chlorination and cyanide processes, treatment of complex gold and silver ores, refining. Metallurgy of lead ; modern smelting practice, lime roasting, desilverisation of lead.

**PART II.**

The metallurgy of copper. History, properties, and uses of Copper. Distribution of Copper ores. Preliminary Treatment. Smelting practice. Pyritic smelting. Converting and refining. Arrangement of plant and furnace design.

**FEE : £4 4s.**

**TEXT BOOKS RECOMMENDED.**—HARBOARD'S *Steel* (Griffin) ; LEVY's *Modern Copper Smelting* (Griffin) ; ROSE's *Gold* (Griffin) ; LAW'S *Alloys* (Griffin) ; RICHARD'S *Metallurgical Calculations* (McGraw Publishing Co.) ; RUER'S *Elements of Metallography* (Chapman and Hall).

### Practical Metallurgy.

The course of study in the laboratories is designed with the object of teaching the properties of the materials used by the metallurgist, and the changes which take place during the production of metals and alloys.

Instruction is given in the properties of metals, alloys, ores, slags, and other metallurgical products; in assaying; in the reactions which underlie various metallurgical processes; and in pyrometry and metallography.

All students work independently, and as far as practicable at the hours best suited to their arrangements. Special facilities will be offered to proprietors, managers, and others engaged in technical or professional work, who desire either to study the technology of their subject, or to work out improvements. Students may commence work in the laboratory at any time. Senior students are encouraged to undertake research work bearing upon their intended future avocations.

### *SYLLABUS OF PRACTICAL METALLURGY AND ASSAYING,*

#### *GENERAL COURSE LABORATORY—PART I.*

**EXAMINATION OF FUEL.**—Commercial Analysis, including Ash, Moisture, Sulphur, Coke, and Calorific Power.

**FURNACE MATERIALS.**—Examination and testing of Fire-clay for plasticity, porosity, refractoriness, etc.

**METALS AND ALLOYS.**—Properties of Copper, Zinc, Tin, Lead, &c. Preparation of different varieties of Brass, Bronze, &c.

**OXIDATION AND REDUCTION.**—Experiments illustrating the use of oxidising and reducing agents in metallurgy. Lead Assay.

**SLAGS AND FLUXES.**—Experiments illustrating the composition, formation, and melting points of slags.

**IRON ASSAY.**—Assay of Iron Ores for Iron, Silica, Phosphorus, Moisture, and Loss on Ignition.

**SILVER.**—Determination of Muffle Temperatures. Experiments with Cupellation. Preparation of Silver Alloys. Assay of Silver Bullion and Silver Ores.

**GOLD.**—Assay of Gold Ores, Lemel and Bullion.

**TEXT BOOK.**—TURNER'S *Introduction to Practical Metallurgy* (Griffin).

**GENERAL COURSE LABORATORY—PART II.**

Students select from the following, among other, subjects of further instruction :—

**FUEL.**—Complete Analysis of Coal, Coke, &c. Gas Analysis as applied to metallurgical operations.

**PYROMETRY.**—Measurements of High Temperatures.

**CALORIMETRY.**—Use of more accurate Calorimeters.

**FURNACE MATERIALS.**—Chemical and Physical tests of Clay and other fire resisting materials.

**IRON AND STEEL.**—Complete Analysis of Iron Ores, Cast Iron, Wrought Iron, and Steel, Preparation and Properties of various Irons, Steels, and Ferro-Alloys.

**COPPER.**—Assay of Copper Ores; Preparation, Properties, and Analysis of Brass, Bronze, German Silver, and other Copper Alloys.

**TIN, LEAD, ZINC, ANTIMONY, NICKEL, COBALT, AND ALUMINUM.**—Assay of Ores and Analysis of Commercial Metals and of most important Alloys.

**ELECTRO-METALLURGY.**—Electro-deposition of Gold, Silver, Copper, Brass, and Nickel. Electro-refining of Metals. Electric Smelting.

**MICROSCOPY.**—Preparation of Samples and Examination of Metals under the Microscope. Photo-Micrography.

**TEXT BOOKS RECOMMENDED.**—BERINGER'S *Text Book of Assaying* (Griffin); BREARLEY AND IBBOTSON—*Analysis of Steel Works Materials* (Longmans); CAMPION'S *Iron and Steel Analysis* (Fraser, Asher and Co.); MACFARLANE—*Iron and Steel Analyses* (Longmans).

**LABORATORY FEES:** For three hours per week throughout the Session, £3 3s. od., and for each additional hour per week, £1 1s. od.

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**Smelting Laboratories.**

Courses of Practical Work, extending over about six weeks in all, will be arranged during the Vacations, to enable students to take part in the working of the Siemens' furnace, the blast furnace, the gold and silver plant, the iron foundry, and other appliances. The plant will also be employed for teaching and experimental work throughout the session.

The above fees entitle the student to work in the Smelting Laboratories. The time to be so spent will be determined by the Professor, and it may be during term or in vacation as may be found necessary. As a rule not more than one-sixth of the student's time may be spent in the smelting laboratories without additional payment at the rate of one guinea per week. For students taking the smelting laboratory only the fee is 25s. per week, with a minimum of £5 5s., which includes entrance fee. The accommodation in this section is limited, and only such students will be admitted as are able to satisfy the Professor that their previous training has been such as will enable them to profit by the instruction.

For Engineering students the fee for the Practical Class throughout the Session, three hours weekly, together with occasional work in the smelting laboratory is £4 14s. 6d.

Gas, fuel, water, and ordinary reagents are supplied by the University, but students must provide themselves with a small set of apparatus ; also with crucibles, and with materials when large quantities are required.

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#### VISITS TO WORKS.

Excursions to Metallurgical Works are arranged throughout the Session. Such visits will usually be in connection with the University Metallurgical Society. The number and variety of Metallurgical industries in the district afford an unusually good opportunity of seeing important processes in operation.

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## TIME TABLE.

METALLURGY.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
<b>Lectures—</b>						
Course I	...	...	...	...	...	10.0†
Course II	...	4.0*	11.30	...	11.30	...
Course III	...	...	...	12.0	...	10.30 10.0*
<b>Practical Classes—</b>						
Engineering Students	...	...	2—5	...	...	...
Junior Course	...	...	2—5	...	...	...
Dental Students	...	...	...	...	...	11—1†
Laboratory—open (For General and Senior Courses)	9.30—5	9.30—5	9.30—5	9.30—5	9.30—5	9.30—1

\* Summer Term only.

† Winter and Spring Terms only.

*REQUIREMENTS FOR DEGREES.*

Candidates for the Degree of B.Sc. in Metallurgy must be matriculated students of the University before commencing their degree course, and must, after matriculation, attend the prescribed courses of study for at least three academic years.

In each year there are certain essential subjects in which students must pass before being allowed to enter the courses of the following year.

The work for the first year, or Intermediate Examination, for those who propose to become Metallurgists, is as follows :

*Mathematics.* Course I (Pure).

*Physics.* Lectures, Course I, and Laboratory.

*Chemistry.* Lectures, Course I (A), and Laboratory.

*Metallurgy.* Junior Course, Lectures, and Laboratory.

*Surveying.* Course I.

*Essential Subjects.* Two of the first three subjects.

The subjects of the Second Year Metallurgical Course are as follows :—

*Metallurgy.* Lectures (General Course) and Laboratory, at least twelve hours, by arrangement.

*Engineering.* Lectures, Course I ; Lectures, Course IA ; Drawing, three hours weekly ; Workshop, three hours weekly.

*Geology.* Lectures, Course I, and Laboratory work.

*Metal Mining.* Course II A.

*Mathematics.* Applied I, Winter Term only.

*German.* Two lectures weekly.

*Essential Subjects.* Metallurgy and the completion of the first year courses.

The subjects of the Third Year's Courses for Metallurgists are as follows :—

- |                      |  |
|----------------------|--|
| <i>Metallurgy.</i>   | Lectures (Senior Course) and Laboratory, at least eighteen hours per week.             |
| <i>Engineering.</i>  | Strength of Materials. Lectures, two hours weekly ; or Laboratory, three hours weekly. |
| <i>Metal Mining.</i> | Courses IIIA and IIIB, Metal Mining Laboratory (see Syllabus of Mining).               |
| <i>Accounting.</i>   | Course IB.   |

The following alternative course may be taken by students who desire to become Metallurgical Chemists :—

#### FIRST YEAR.

- |                            |  |
|----------------------------|--|
| <i>Mathematics.</i>        | Course I (Pure).                                       |
| <i>Physics.</i>            | Lectures, Course I and Laboratory.                     |
| <i>Chemistry.</i>          | Lectures Course I (A and B) and Laboratory.            |
| <i>Metallurgy.</i>         | Junior Course, Lectures and Laboratory.                |
| <i>Surveying.</i>          | Course I.  |
| <i>Essential Subjects.</i> | Chemistry, with one other of the first three subjects. |

#### SECOND YEAR.

- |                     |  |
|---------------------|--|
| <i>Metallurgy.</i>  | Lectures (General Course) and Laboratory, at least twelve hours, by arrangement.                       |
| <i>Engineering.</i> | Lectures, Course I ; Lectures, Course IA ; Drawing, three hours weekly ; Workshop, three hours weekly. |

<i>Chemistry.</i>	Lectures, Course IIIB, and Laboratory, six hours weekly, by arrangement.
<i>Mathematics.</i>	Applied I, Winter Term only.
<i>German.</i>	Two lectures weekly.
<i>Essential subjects.</i>	Metallurgy, Chemistry, and the completion of the first year's subjects.

## THIRD YEAR.

<i>Metallurgy.</i>	Lectures (Senior Course). Two or three lectures weekly ; Laboratory, eighteen hours weekly, by arrangement.
<i>Chemistry</i>	Lectures, Course IIIB ; Physical Chemistry ; Laboratory, nine hours weekly, by arrangement.
<i>Engineering.</i>	Strength of Materials ; Lectures, two hours weekly ; or Laboratory, three hours weekly.
<i>Accounting.</i>	Course IB. One lecture weekly.

Students must, in addition, afford satisfactory evidence that they have during their course of study regularly attended, for a period of at least equal to a University term, at some metallurgical establishment previously approved by the Professor. They will be expected to give full and accurate descriptions of the plant and of the processes in which they have taken part, and in the final examination marks will be awarded for this part of the work. Attendance can be conveniently made during University vacations, or in connection with the Vacation Courses in Metallurgy, attendance at which will be accepted for not more than two months of the required period.

Mining and Geological students, and those who take Metallurgy as a single subsidiary subject, take the General

Course Metallurgical Lectures, and also Practical Metallurgy (General Course, Part I) together with such portions of Part II as may be of special importance in any particular case. They are also recommended to take a Vacation Course in the Smelting Laboratory.

Engineering students take Metallurgy (Lectures, General Course) in their second year, and a Special Laboratory Class, which will meet on Wednesday afternoons from 2—5 throughout the Session.

Dental students take the Junior Course, Lectures and Laboratory.

*Manufacturers or Managers of Works having vacancies are requested to apply to the Professor.*

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## TIME TABLE OF FIRST YEAR COURSE FOR DEGREE IN METALLURGY.

SUBJECTS.	CLASS HOURS.					Sat.
	Mon.	Tues.	Wed.	Thurs.	Fri.	
<b>METALLURGY—</b>						
Lectures, Course I*	..	..	..	..	..	10.0
Laboratory	..	..	..	..	..	..
<b>MATHEMATICS—</b>						
Course I (Pure)	..	11.30	11.30	..	11.30	..
<b>PHYSICS—</b>						
Course I	..	..	10.30	10.30	..	..
Laboratory	..	..	2.30—5.0	..	..	..
<b>CHEMISTRY—</b>						
Lecture, Course I (A) & (B)†	9.30	..	..	9.30	9.30	..
Laboratory	..	..	..	2.30—5.0	..	..
Course I (Metals)	..	..	..	11.30	..	..
<b>SURVEYING I</b>						
	..	..	2—5	..	..	..

COMPOSITION FEE: £30 10s. 6d.      † Course B is optional for Metallurgists.

\* Winter and Spring Terms.

## TIME TABLE OF SECOND YEAR COURSE FOR METALLURGISTS.

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SUBJECTS.	CLASS HOURS.					Sat.
	Mon.	Tues.	Wed.	Thurs.	Fri.	
METALLURGY— Lectures, Course II .. Assaying and Smelting .. Laboratories (12 hours) ..	4.0† .. 2—5	11.30 .. 2—5	.. 10-30—I	11.30 ..	.. 2—5	..
GEOLoGY— Lectures and Laboratory— Course I ..	..	..	..	9.30 - 11.30	..	Field.
ENGINEERING— Lectures, Course I .. Electrical, Course IA .. Drawing (3 hours) Workshop (3 hours) ..	.. 10.30 .. ..	12.30 .. .. ..	.. .. .. ..	.. .. .. ..	12.30 .. 2—5 2—5	.. .. .. ..
MINING— Course IIA ..	..	..	..	..	..	..
APPLIED MATHEMATICS I* ..	9.30	..	9.30	..	9.30	..

COMPOSITION FEE : £35 10s. 6d.

\* Winter Term.      † Summer Term.

## TIME TABLE FOR SECOND YEAR COURSE FOR METALLURGICAL CHEMISTS.

SUBJECTS.	CLASS HOURS.				
	Mon.	Tues.	Wed.	Thurs.	Fri.
<b>METALLURGY—</b>					
Lectures, Course II ..	4.0†	11.30	..	11.30	..
Assaying and Smelting	..	2—5	10—11	..	..
Laboratories (12 hours)	..	..	..	..	10.30—11
<b>CHEMISTRY—</b>					
Lectures, Course IIB ..	..	..	..	..	..
Laboratory (6 hours)	2—5	..	..	..	..
<b>ENGINEERING—</b>					
Lectures, Course I ..	..	12.30	..	..	12.30
Electrical, Course IA ..	..	10.30	..	..	..
Drawing (3 hours) ..	..	..	..	..	..
Workshop (3 hours) ..	..	..	..	..	..
APPLIED MATHEMATICS I* ..	9.30	..	9.30	..	9.30

COMPOSITION FEE : £35 10s. 6d.

† Summer Term.

\* Winter Term only.

TIME TABLE OF THIRD YEAR COURSE FOR METALLURGISTS.

SUBJECTS.	CLASS HOURS.					Sat.
	Mon.	Tues.	Wed.	Thurs.	Fri.	
METALLURGY— Lectures, Course III Assaying and Smelting Laboratories (18 hours)	.. 4 hours	.. 2 hours	12.0 2 hours	.. 5 hours	10.30 2 hours	10.0* 10—1
ENGINEERING— Strength of Materials† Ditto, Laboratory*	10.30 ..	.. 2—5	.. ..	10.30 ..	.. ..	.. ..
MINING— Lectures, Course IIIA Lectures, Course IIIB Metal Mining Laboratory‡ (including Mineralogy)	9.30 .. ..	.. .. ..	.. 2—5	.. ..	.. 9.30 2—5	.. .. ..
ACCOUNTING— Course IB	.. ..	.. ..	10.30	..	..	..

COMPOSITION FEE : £35 ros. 6d.

† Winter and Spring Terms. \* Summer Term.

TIME TABLE OF THIRD YEAR COURSE FOR METALLURGICAL CHEMISTS.

SUBJECTS.	CLASS HOURS.					
	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
METALLURGY— Lectures, Course III .. Assaying and Smelting Laboratories (18 hours) ..	.. .. ..	.. .. 4 hours	12.0 2 hours	.. 10—1	10.30 11.30—5	10.0* 10—I
ENGINEERING— Strength of Materials† .. Ditto, Laboratory* ..	10.30 ..	.. 2—5	.. ..	10.30 ..	.. ..	.. ..
CHEMISTRY— Lecture, Course III B .. Laboratory (9 hours) ..	.. ..	.. ..	.. ..	By arrangement. By arrangement.		
ACCOUNTING— Course IB ..	.. ..	.. ..	.. 10.30	.. ..	.. ..	..

COMPOSITION FEE : £35 10s. 6d.      † Winter and Spring Terms.      \* Summer Term.

**MINING.**

THE UNIVERSITY, EDGBASTON.

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*Professor:* JOHN CADMAN, M.Sc.; D.Sc., M.Inst.C.E.  
F.G.S., etc.

*Lecturer in Metal Mining and Economic Mineralogy:*  
J. L. JEFFERY, A.R.S.M., M.Inst.M.M., F.G.S.

*Lecturer in Surveying and Coal Mining:*  
WILLIAM HULSE, B Sc.

*Demonstrator in Mine Rescue Work:*  
A. H. CLARK.

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The time of the mining students at the University is not entirely devoted to theoretical work; much of it is of a thoroughly practical character. There are occasional visits to the mines of the neighbourhood, and either a few weeks are devoted by the students each year, in company with a member of the staff, to the inspection and study of some group of British or Foreign mines, to a School of practical surveying at a mine, or arrangements are made for the students to have from two to three months' practical experience at a mine.

The courses have been so arranged as to meet the requirements of those who intend to become—

- 1.—Practising and Consultative Mining Engineers;
- 2.—Colliery Managers;
- 3.—Managers of Metal Mines;
- 4.—Petroleum Mining Engineers;
- 5.—Teachers of Mining;
- 6.—Mine Surveyors;
- 7.—Land and Estate Agents;
- 8.—Landowners, owners of collieries, and those generally interested in mines and quarries.

## DIPLOMA IN MINING.\*

Students who desire to obtain the Diploma in Coal Mining must take the three years' Course described on page 343.

They must further have practical experience in a mine for at least two months in each year, or have had a minimum of four months of such experience prior to entering on the Diploma Course.

## B.Sc. DEGREE IN MINING.†

Candidates for the B.Sc. Degree are required to be matriculated in the Faculty of Science before entering on the courses of study for the degree. After matriculation, students are required to attend courses of study in mining and the allied sciences, for a period of at least three years, and to have had the practical experience of at least two months in each year or a minimum of six months of such experience prior to entering on the Degree Course.

## CERTIFICATES OF COMPETENCY UNDER THE COAL MINES REGULATION ACT.

The regulations for the Diploma in Mining, and the B.Sc. Degree in Mining, of the University have been accepted by the Secretary of State for the Home Department as qualifying for part of the experience necessary to qualify for a First Class Certificate of Competency under the Coal Mines Regulation Act, 1911.

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\* Matriculation is not required for Diploma students.

† Candidates intending to take the Degree Course are advised to matriculate on leaving school, and to obtain twelve months' practical experience before entering on the Course.

### COURSE IN METAL MINING.

Courses IIA and IIIA and IIIB have been specially drawn up to meet the requirements of students undergoing a training in metal mining, and those otherwise interested in the subject. In addition to these courses metal mining students studying for the Diploma must take such portion of Courses I, II. and III as bear on their subject.

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### SUMMER SCHOOL.

A few weeks of each long vacation may be devoted to visiting and making a thorough inspection of the mines in some mining district, either in Britain or abroad, or to practice in mine surveying. The students are required to take detailed daily notes, and to furnish a full report upon the termination of the school. The fee for this practical course is £5 5s. od. The Summer School may take the form of two to three months' practical experience at a mine.

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### LABORATORY PRACTICE.

Laboratory practice is essential in the curriculum of the regular Mining Student, but advanced Laboratory practice is also designed for those who have already passed through a Mining course at other Schools.

The Laboratory Practice is made up as follows :

- (a) ECONOMIC MINERALOGY for second and third year students; examination of minerals, and blow pipe analysis.
- (b) COAL MINING LABORATORY for second and third year students. This work is carried on in the laboratory and experimental mine, and consists of :—Analysis of coals, and other fuels. Fractional distillation and examination of petroleums. Flash points, viscosity. Determination of the constituents of mine air. Testing of safety lamps. Determination of fire damp by the flame. Ventilation Tests. Efficiency of fans—manometrical and mechanical determination of coefficient of

friction ; efficiency of pumps. Mine timbering. Practice and use of mine rescue apparatus. Detection and analyses of mine gases, etc.

- (c) Dressing Practice for third year students. Construction and use of machines, crushers, stamps, Huntington mill, ball mills, rolls, conveyors, screens, classifiers, jigs, amalgamators, Wilfley and Frue Vanner Tables, etc., etc. Typical ores from various well-known mining districts are treated in accordance with the particular mill practice. Experiments are also conducted for the determination of special methods of treatment. The scheme of laboratory practice is so designed to obtain independent results from each machine, and also collective results when running a complete mill test. The work for third year students in the Metallurgical laboratory is arranged to enable assays to be conducted concurrently with the ore dressing.
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### COURSES OF STUDY.

The following curriculum is provisional, and hereafter may be altered or extended as experience of the wants and requirements of mining students and the mining public may determine.

These mining courses comprise an education in the principles and practice of coal mining, metal mining, petroleum mining, quarrying, mine surveying, and mining jurisprudence ; and, in connexion therewith, the students attend lectures and laboratory classes in the sciences allied to mining.

In each year there are certain essential subjects in which students must pass before being allowed to enter the courses of the following year.

#### FIRST YEAR.

- 1.—Mathematics, Course I (Pure).
- 2.—Physics, Course I, and Physical Laboratory.
- 3.—Chemistry, Course IA, and Laboratory ; Course I (Metals) Tutorial.
- 4.—Mining, Course I. Surveying, Course I.
- 5.—Engineering Workshop.

*Essential Subjects.*—Mining and Surveying, and one of the other subjects.

*SECOND YEAR.*

- 1.—Geology, Course I, and Field Work
- 2.—Metallurgy and Metallurgical Laboratory.
- 3.—Engineering, Course I, Course IA (Electrical), Workshop, and Drawing.
- 4.—Mining, Course II, Course IIA, and Surveying, Coal Mining Laboratory.

*Essential Subjects.*—Mining, Surveying, and Geology, and the completion of the first year courses.

*THIRD YEAR.*

- 1.—Mining, Courses III, IIIA, and IIIB, and Surveying, Mining Laboratory, Practical Mineralogy.
- 2.—†Engineering ; Special Electrical Mining Course XIIIC, with Electrical Laboratory ; Steam Engineering practice in the power station and workshop.
- 3.—Geology, Course II, and Field Work.
- 4.—Accounting.

Metallurgical Students will take Courses IIIA and IIIB.

† Metal Mining Students take Metallurgical Laboratory six hours per week, Coal Mining and Diploma Students take Engineering Course VIII and Laboratory.

## LECTURE, LABORATORY, AND SURVEYING COURSES.

### First Year's Course.

#### GENERAL MINING, COURSE I.

PROFESSOR CADMAN.

One lecture a week, on Fridays, at 9.30 during the Session.

FEE : £2 2s. od.

This course of about thirty lectures on Mining will be given during the Session, and will follow the lines of the subjoined syllabuses.

#### Syllabus I.

OBJECTS AND CONDITIONS OF MINING.—Scope of the subject. Qualifications of a Mining Engineer.

PROSPECTING AND BORING.—Outcrops, surface indications, coal and other mineral deposits, costeaning, shoading, position of boreholes, various methods of boring, cost of boring.

BREAKING GROUND.—Sinking shafts, position, number, shape, and size of shafts, manner of sinking and securing shafts, sinking through running ground, various costs in connection with sinking.

## SURVEYING.

### I.

*Mine and Land Surveying and Plotting extending over three years.*—Half of each of the first two years' Courses will be devoted to surveying in the field or underground, or to plotting surveys in the drawing office.

Besides the practical work in the field, underground, and in the drawing office, there will be lectures on the subject. Thursdays, 2 to 5.

FEE : £3 3s.

N.B.—Students are expected to be able to work with logarithms and to be conversant with elementary plane trigonometry.

### Syllabus I.

**THE OBJECT OF SURVEYING.**—Qualifications of Surveyor.

**DIRECT MEASUREMENT OF DISTANCES.**—Chains, Steel Tapes, measurement on slopes, correction for slope. Underground measurements. Simple chain surveying ; offsets ; ranging lines. Methods of booking and plotting.

**THE MINER'S DIAL.**—Construction ; limitations. Instrumental errors. Secular, annual, and diurnal variations of magnetic meridian ; magnetic storms. Determination of magnetic declination. Loose needle dialling ; method of booking. Loose needle dialling in presence of iron. Fast needle dialling ; principle of the vernier ; the three-stand method ; the one-stand method ; method of booking. The dial as a rough theodolite.

**PLOTTING DIAL SURVEYS.**—By protractor ; by chords.

**THE GERMAN DIAL AND MODIFICATIONS.**

**CALCULATION OF AREAS.**—“Give and take” lines ; rule paper method ; reduction to triangles ; use of planimeter. Assessing royalty dues.

**CALCULATION OF VOLUMES.**—Contour lines. Contents of reservoirs, heaps, embankments, etc.

**LEVELLING.**—Forms of levelling instruments ; their construction. Levelling staffs. Simple levelling ; compound levelling ; flying levels ; underground levelling. The plotting of section levels. Levelling steep drifts. Measurement of depths of shafts.

**THEODOLITE.**—Construction. Specifications for mine surveying purposes. Simple traversing, underground and surface.

**MINE PLANS.**—Their object. Coal Mines and Metalliferous Mines' Regulation Acts regarding plans. Construction of plans ; scales ; printing ; colouring, etc. The copying of plans by Process work.

**GRADIENTS.**—Rules regarding ; Problems relating to.

## Second Year's Course.

## GENERAL MINING.

## II.

PROFESSOR CADMAN.

One lecture a week, on Wednesdays, 11-30.

FEE : Lectures, £2 2s.

A course of about thirty lectures will be given during the Session, which will follow the subjoined syllabus :

**UNDERGROUND DEVELOPMENT AND SYSTEMS OF WORKING**—Laying out a colliery underground. Preliminary operations in coal mines. Various systems of working coal seams. Coal cutting. Blasting. Timbering in colliery workings.

**TRANSPORT**.—Underground and surface transport, haulage by hand, by horse, mechanical haulage, main rope, main and tail rope, and endless rope systems of haulage self-acting inclines, locomotive and electric haulage, ropes, surface transport, aerial ropeways, horse, steam and electric tramways.

**WINDING**.—Kibbles, skips, cages, ropes, pit-head frames, pulleys, guides, keps, onsetting and banking, surface arrangements. Winding engines, drums.

**DRAINAGE**.—Water levels, underground pumping and pumps, pumping by ropes, steam, compressed air, electric and hydraulic pumps, surface pumps and pumping.

**VENTILATING**.—The atmosphere and mine gases, ventilation, underground air-currents. Splitting and measuring air-currents.

**LIGHTING OF MINES**.—Safety lamps.

*METAL MINING COURSE.*

## IIA.

MR. JEFFERY.

One lecture per week, on Fridays, at 11.30.

FEE : £2 2s.

A course of thirty lectures will be given during the Session, which will have the following syllabus :

**Syllabus.***The Working of Ore Deposits.*

Occurrence of minerals, veins and ore deposits of various kinds, rock-forming minerals, blasting and rock drilling, mining tools, cross-cutting and driving of levels, stoping, costs, timbering and supporting of excavations, various systems of working mineral veins and ore deposits, quarrying of slate and building stones.

*COAL MINING LABORATORY.*

Three hours a week throughout the Session, Wednesdays,  
2 to 5.

FEE : £7 17s. 6d.

*PRACTICAL MINERALOGY.\**

MR. JEFFERY.

Wednesdays, 2 to 5.

FEE : £3 3s.

*SURVEYING.*

## II.

Mondays, 2 to 5, throughout the Session.

FEE : £3 3s.

**Syllabus.**

**CO-ORDINATES.**—Method of calculating; their value and accuracy.

**THE THEODOLITE.**—Methods of measuring angles; transit method; repetition; reiteration; deflection angles.

Traversing underground and surface; methods of booking.

**TRIANGULATION.**—Choice of base-lines and stations; Measurement of base-lines; extension of short bases. The best shape of triangles. Measurement of angles. Fixing subsidiary points; the "three-point problem." Solution of triangles; calculation of co-ordinates; mode of plotting. Filling in details; plane table; prismatic compass and field sketching.

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\* Students are required to provide themselves with a blowpipe analysis set.

**LEVELLING—**

- (a) **GEOMETRICAL LEVELLING.**—The dumpy ; the Y-level ; contouring by level. Sounding.
- (b) **TRIGONOMETRICAL LEVELLING.**—By theodolite. By tacheometer ; subtense method of measuring distances ; the stadia ; Reichenbach's formula ; booking tacheometer readings ; reduction of tacheometer readings ; plotting ; contouring by tacheometer ; method of making complete survey by tacheometer.
- (c) **PHYSICAL LEVELLING.**—The hydrometer ; the mountain barometer ; the aneroid.

**CARRYING BEARING UNDERGROUND.**—In the case of adits. In the case of two vertical shafts. In the case of one vertical shaft ; Weisbach's method ; Gauss' method. Best shape of triangles. Re-placing plumb-lines by pins ; clamping plumb-lines ; Schmidt's apparatus. Optical plumbing. In case of inclined shafts. Corrections in use of side-telescope and top-telescope.

**ADJUSTMENTS OF THEODOLITE.**—Temporary adjustments. Permanent adjustments for line of collimation ; for horizontal axis ; for index error ; for spirit levels. Makers' adjustments ; testing centering, graduations, centricity of plates, etc.

**ADJUSTMENT OF DUMPY AND Y-LEVELS.**—Temporary. Permanent ; collimation, top level adjustments.

**DETERMINATION OF LATITUDE AND LONGITUDE.**—By sun ; by stars. "Dead reckoning." Solar attachment.

**DETERMINATION OF AZIMUTH.**—From Ordnance map, by sun. by pole-star, method of equal altitudes, "Alioth" method,

**SETTING-OUT.**—Maintaining gradient and alignment underground. Underground curves. Railway and drainage tunnels. Ranging railway curves. Miscellaneous metal mining problems.

**BOREHOLE SURVEYING.**—Necessity for borehole surveying, effects of deviation of the bore-hole on the dip, strike and depth. The stratumeter, Nolten's, MacGeorge's, and Marriott's methods. Related problems.

**SUMMER SCHOOL MINING CAMP.**

For two to three weeks at the end of the session the two years students attend a Mining Camp for Field Work

*MINING.*

## IIB.

PROFESSOR CADMAN.

One lecture a week throughout the session.  
Time to be arranged

**PETROLEUM MINING.**—Exploration, prospecting and development of petroleum fields. Various methods of drilling. Description of the structure and development of various oil-fields. Laws relating to petroleum mining. Preparation of petroleum for the market, etc.

## Third Year's Course.

## GENERAL MINING.

## III.

PROFESSOR CADMAN.

One lecture a week on Wednesdays, at 9.30.

FEE : Lectures, £2 2s.

A course of about thirty lectures will be given during the Session, which will follow the subjoined syllabus :

**COLLIERY AND MINE MANAGEMENT.**—Pumping, re-opening of drowned-out mines ; special instances described. Colliery explosions. Mode of procedure in work of rescue and reclamation ; special instances treated. Examination and Valuation of Mines and Mineral Properties. Mine Reports. Commercial considerations.

**MINING JURISPRUDENCE.**—Mining Laws and Regulations. Acts of Parliament relating to Mines. Ownership of Minerals, Royalties, Concessions, Leases, Dues, Foreign Mining Laws.

*Laboratory*, Thursdays, 2 to 5.

## Course IIIA.

MR. JEFFERY.

One lecture a week, on Mondays, at 9.30.

FEE: £2 2s. .

A course of about thirty lectures will be given during the Session, which will follow the accompanying syllabus.

Hydraulicing. Dredging. Means of Ascent and Descent of Mines. Pumping. Air Compressors. Sampling. Estimation of Reserves. Laying out of Surface Erections and Plant. Principles of Employment. Metaliferous Mines Regulation Act.

**Course III B.**

**PROFESSOR CADMAN AND MR. JEFFERY.**

One lecture a week, on Thursdays, at 9.30.

FEE : Lectures, £2 2s.

**DRESSING OF MINERALS AND FUELS.****OBJECTS AND PRINCIPLES.**

**HAND SORTING.**—Spalling, Picking. Picking Belts, Tables.

**CRUSHING.**—Rock-breakers, Rolls, Stamps, Disintegrators, Coal-breakers.

**SIZING.**—Sieving, Screens of various types, Hydraulic Sizing

**HYDRAULIC DRESSING.**—Principles, Jigs, Coal-washers, Buddles, Blankets, Vanners.

**PNEUMATIC DRESSING.****MAGNETIC SEPARATION.**

**APPLICATIONS OF METHODS TO SPECIAL CASES.**—Coal, Washing. Cleaning Iron Ores. Dressing of Lead, Copper-Zinc Ores. Tin Stamping. Gold Milling. Concentrating Silver Ores. Gem Washing. The Designing and Erection of Mineral Dressing Plant.

**Laboratory.**—Wednesdays and Fridays, 2 to 5, and Tuesdays, 2 to 5, for Coal Mining Students only.

FEE : £12 12s.

**PRACTICAL SURVEYING.****III.**

Mondays, 10.30 to 1.30.

During the third year, students prepare a plan of a mine which forms part of the work for the Degree and Diploma. When the Summer School has consisted of Surveying, this course consists of making necessary calculations on the preparation of a plan of the mine at which the School was held.

**Syllabus.**

Practical work in use of instruments underground, and at the surface, and computation of results. Construction and adjustment of instruments.

FEE : £3 3s.

As part of the Final Examination in Surveying, students will be required to produce—

- I. A plan of an underground traverse, with notes, to be produced at end of first year.
- II. (a) A sectional levelling made in a mine, with notes.  
(b) A surface survey, with notes, to be produced at end of second year.

*Visits of Inspection to Works.*—There will be, whenever possible, visits to the mines in the neighbourhood. These visits will be common to the students attending all or any of the Mining courses. Students are required to write a report on the collieries visited.

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#### †MINE RESCUE WORK.

MR. CLARK.

A course of lectures will be given during the Summer Term upon Mine Rescue Work, followed by practical instruction in the use of self-contained breathing apparatus.

Time by arrangement.

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#### AMBULANCE.

Courses will be arranged on Ambulance Work during each year and must be taken by Diploma and Degree students.

† This Course to be taken by Degree and Diploma Students in Coal Mining.

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## PETROLEUM MINING.

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With the rapid development of the petroleum industry in various parts of the world, including the British Colonies, a demand has arisen for men qualified to conduct this important branch of Mining. For some years the University of Birmingham has provided special courses in Petroleum Mining, and many of those who have taken advantage of the facilities thus afforded are now holding responsible positions in the industry. A syllabus has been arranged to cover the course for the degree of B.Sc., and a Diploma in Petroleum Mining has been prepared in consultation with Sir Boverton Redwood, Bart., D.Sc., Petroleum Adviser to the Admiralty Home Office, and India Office, and Consulting Adviser to the Colonial Office.

The modern laboratories of the University are specially adapted to the requirements of a course of instruction in this branch of mining.

### COURSES OF STUDY.

The following curriculum is provisional and may be altered and extended to meet the requirements of the Petroleum Mining Students.

The course comprises lectures and laboratory practice in the Principles and Practice of Mining, Boring (in all its branches), Surveying and Bore Hole Surveying, Petroleum Mining Law, and the Transport, Storage, and Refining of Petroleum, in connection with which the students will attend lectures and laboratory classes in the sciences allied to the subject.

FIRST YEAR. FEE: £30 10s. 6d.

Mathematics—Course I (Pure).

Physics—Course I—and Physical Laboratory.

Chemistry—Course I—and Laboratory.

Mine Surveying—Course I.

Engineering Workshop.

Mining I.

### SECOND YEAR.

Chemistry, Organic and Laboratory.

Geology (including Field Geology).

Engineering—Course I, IA, and Workshop.

Mining—Course IIB.

Surveying—Course II.

Mining Laboratory (including fuel analysis and calorimetry).

Practical Mineralogy.

German.

### THIRD YEAR.

Surveying.

Mining—Courses III, IIIA, and Laboratory.

Chemistry of Petroleum Refining.

Engineering, hydraulic and laboratory.

Engineering practice in the Power Station and Workshop.

Geology—Course II and Field Mapping.

Special Petroleum Mining Geology (including Field Work)



## ELECTRICAL ENGINEERING FOR MINING STUDENTS.

DR. WALL.

The course consists of three lectures a week throughout the session, and one afternoon a week in the Electrical Engineering Laboratory. It deals with the fundamental principles of Electrical Engineering, and their application in the construction and use of the plant required in the electrical distribution of power, and in the lighting of mines, and follows the subjoined syllabus.

*Lectures*.—Tuesdays, at 9.30 and 11.30, and Thursdays, at 11.30.

FEE: £5 5s.

*Laboratory*.—Thursdays, 2 to 5.

FEE: £6 6s.

*Fundamental Principles*. Ohm's Law and its applications in electrical measurements. Electrical energy and power. Magnetism and Magneto-electric Induction. Self and Mutual Induction. The principles of alternating currents.

*Cables*. Feeders and Distributors and their construction and methods of laying and support. Faults and Fault-testing. Leakage-indicators. Insulation-testing. Continuity of Armouring and Earthing. Dangers of Shock. Electrolysis.

*Generators and Transformers*. The construction and principles of action of continuous and alternating current generating and transforming machinery, including batteries and load equalizers. Their parallel operation. Size and approximate cost.

*Motors*. The construction and principles of action of continuous and alternating current motors. Their suitability as to mechanical operation and safety in mines. Their applications to winding, haulage, pumps, fans, coal-cutters, and drills.

*Switch-gear*, and accessory appliances used in the control and distribution of electrical energy.

*Instruments of measurement*. Ammeters, voltmeters, watt-meters, integrating meters, etc.

*Lamps*. Arc and glow lamps, and the limitations as to their use on the surface and underground.

*Legislation*. Coal Mines Regulation Act, Special Rules.

## BOOKS RECOMMENDED FOR GENERAL READING.

## TEXT BOOKS ON COAL MINING :—

*A Text Book on Coal Mining* (H. W. HUGHES).

*Modern Practice in Mining* (R. A. S. REDMAYNE).

*Report to the Royal Commission on Mines, on the Ventilation of Coal Mines and Methods of examining for Fire Damp* (JOHN CADMAN and E. B. WHALLEY).

*Petroleum* (BOVERTON REDWOOD).

*Oil Finding* (E. H. CUNNINGHAM CRAIG).

*Petroleum Mining* (A. BEEBY THOMPSON).

## LABORATORY—

*The Investigation of Mine Air* (C. LE NEVE FOSTER and J. S. HALDANE).

*Methods of Air Analysis* (J. S. HALDANE).

## MINE SURVEYING :—

*A Treatise on Mine Surveying* (BENNETT H. BROUH).

*Mine Surveying* (ARNOLD LUPTON).

*Text Book of Topographical Surveying* (CLOSE).

## METAL MINING :—

*Ore and Stone Mining* (C. LE NEVE FOSTER).

*Dressing of Minerals* (HENRY LOUIS).

*Ore Dresssing* (RICHARDS).

*Gold Milling* (HENRY LOUIS).

*Ramsay Mineralogy, or Elements of Mineralogy* (F. RUTLEY).

*The Chemistry of Petroleum* (C. K. TINKLER and F. CHALLENGER).

## ELECTRICAL :—

*Electricity in Mines* (WALKER).

*Electricity as Applied to Mining* (LUPTON, PARR & PERKIN).

The following are recommended for reference :—

*The Transactions of the Federated Institute of Mining Engineers.*

,, , " *Institute of Mining and Metallurgy.*

,, , " *American Institute of Mining Engineers.*

*Home Office Reports of H.M. Inspector of Mines.*

*Dana's Mineralogy.*

Mine Owners or Managers having vacancies are requested to apply to the Professor.

TIME TABLE OF FIRST YEAR COURSE FOR DEGREE AND DIPLOMA IN MINING.

SUBJECTS.	CLASS HOURS.				
	Mon.	Tues.	Wed.	Thurs.	Fri.
MATHEMATICS I. .	.. 11.30	11.30	..	11.30	11.30
PHYSICS—					
Lectures I.	.. 10.30	..	10.30	10.30	..
Laboratory	.. 2.30—5.0	..	..	..	..
CHEMISTRY—					
Lectures I A*	.. 9.30	..	9.30	9.30	..
Metals	.. ..	..	11.30	..	..
Tutorial	.. ..	..	10.30	..	..
Laboratory	.. ..	..	..	..	2.30—5.0
MINING—					
Lectures I.	.. ..	..	..	..	9.30
Surveying	.. ..	..	..	2.0—5.0	..
ENGINEERING—					
Workshop	.. ..	2.0—5.0	..	..	..

COMPOSITION FEE : £28 o o.

\* Winter and Spring Terms.

TIME TABLE OF SECOND YEAR COURSE FOR DEGREE AND DIPLOMA IN MINING

SUBJECTS.	CLASS HOURS.					Sat.
	Mon.	Tues.	Wed.	Thurs.	Fri.	
GEOLOGY— Lectures & Laboratory I.	..	9.30—11.30	..	9.30—11.30	..	Field.
ENGINEERING— Course I. : Electrical, Course I A. : Workshop : Drawing :	12.30 10.30 .. ..	.. .. .. ..	.. .. .. 2.0—5.0	.. .. .. ..	12.30 .. 2.0—5.0 ..	.. .. .. ..
METALLURGY— Lectures II. Laboratory	.. ..	.. ..	11.30 ..	.. ..	11.30 2.0—5.0	.. ..
MINING— Lectures II. Lectures II A. Surveying II. Laboratory	.. .. .. ..	.. .. .. ..	.. .. .. 2.0—5.0	.. .. .. ..	.. .. .. ..	.. .. .. ..

COMPOSITION FEE: £35 TO 6.

TIME TABLE OF THIRD YEAR COURSE FOR DEGREE AND DIPLOMA IN MINING (COAL).

SUBJECTS.	CLASS HOURS.					Sat.
	Mon.	Tues.	Wed.	Thurs.	Fri.	
MINING III ", IIIA ", IIIB. Laboratory Surveying III	.. .. .. .. ..	.. 9.30 .. .. 10.30-1.30	.. .. .. .. ..	9.30 .. .. 2.0—5.0 ..	.. .. .. ..	.. .. .. ..
ENGINEERING— Lectures VIII Laboratory (Hydraulics) Electrical Mining, XIII C Electrical Laboratory Power Station ..	.. .. .. .. ..	10.30 .. 9.30 & 11.30 .. 2.0—5.0	.. 2.0—5.0† .. .. ..	10.30 .. 11.30 2.0—5.0 ..	.. .. .. ..	.. .. .. ..
GEOLOGY— Lectures & Laboratory II B Field-work (Mapping) ..	.. ..	.. ..	10.30-12.30 ..	.. ..	10.30-12.30* 9.30—5.0†	Field. ..
ACCOUNTING— ..	..	10.30	..	..	..	
MINERALOGY ..	..	2.0—5.0	..	..	..	..

COMPOSITION FEE : £45 10 6.      † Summer Term.      \* Winter and Spring Terms.

TIME TABLE OF THIRD YEAR COURSE FOR DEGREE AND DIPLOMA IN MINING  
(METAL).

SUBJECTS.	CLASS HOURS.					Sat.
	Mon.	Tues.	Wed.	Thurs.	Fri.	
MINING III.	..	..	9.30	..	..	..
III A.	..	9.30	..	..	..	..
" III B.	..	..	..	9.30	..	..
Laboratory	..	..	2.0—5.0	..	2.0—5.0*	..
Surveying III.	..	10.30—1.30	..	..	..	..
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ENGINEERING—						
Electrical Mining, XIII C	..	9.30—11.30	..	11.30	..	..
Electrical Laboratory	..	..	..	2.0—5.0	..	..
Power Station	..	2.0—5.0	..	..	..	..
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METALLURGY—						
Laboratory	..	..	2.0—5.0	..	10.30—1.0	..
<hr/>						
GEOLOGY—						
Lectures & Laboratory II B	..	..	10.30—12.30	..	10.30—12.30*	Field.
Field-work (Mapping)	..	..	..	..	9.30—5.0†	..
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ACCOUNTING	..	..	10.30	..	..	..
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MINERALOGY†	..	..	2.0—5.0	..	..	..

COMPOSITION FEE : £45 10 6.    † Summer Term. \* Winter and Spring Terms. † Spring Term.

TIME TABLE OF FIRST YEAR COURSE FOR DEGREE AND DIPLOMA IN MINING  
(PETROLEUM).

SUBJECTS.	CLASS HOURS.					Sat.
	Mon.	Tues.	Wed.	Thurs.	Fri.	
MATHEMATICS I. .	11.30 ..	11.30 ..	..	11.30 ..	11.30 ..	..
PHYSICS I.—	..	..	..	..	..	..
Lectures ..	10.30 ..	..	..	10.30 ..	..	..
Laboratory ..	2.30—5.0 ..	..	..	..	..	..
CHEMISTRY I.—	..	..	..	..	..	..
Lectures ..	9.30 ..	..	..	9.30 ..	..	..
Metals ..	.. ..	.. ..	.. ..	11.30 ..	.. ..	.. ..
Tutorial ..	.. ..	.. ..	.. ..	10.30 ..	.. ..	.. ..
Laboratory ..	.. ..	.. ..	.. ..	2.0—5.0 ..	.. ..	.. ..
MINING I.—	..	..	..	..	..	..
Lectures ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
Surveying ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..
ENGINEERING—	..	..	..	..	..	..
Workshop ..	.. ..	.. ..	.. ..	.. ..	.. ..	.. ..

COMPOSITION FEE : £30 10 6. \* Winter and Spring Terms

TIME TABLE OF SECOND YEAR COURSE FOR DEGREE AND DIPLOMA IN MINING  
(PETROLEUM).

SUBJECTS.	CLASS HOURS.					Sat.
	Mon.	Tues.	Wed.	Thurs.	Fri.	
MINING IIB	..	..	..	..	..	..
Surveying II	..	..	2.0—5.0	..	..	..
Laboratory	..	..	..	..	..	..
CHEMISTRY	..	..	..	..	..	..
Laboratory	..	..	..	..	..	..
ENGINEERING I	..	..	12.30	..	..	12.30
Electrical IA	..	..	10.30	..	..	..
Workshop	..	..	..	..	..	..
GEOLOGY	..	..	..	9.30—11.30	..	Field.
MINERALOGY	..	..	..	2.0—5.0	..	..

COMPOSITION FEE : £35 10 6

TIME TABLE OF THIRD YEAR COURSE FOR DEGREE AND DIPLOMA IN MINING  
(PETROLEUM).

SUBJECTS.	CLASS HOURS.					Sat.
	Mon.	Tues.	Wed.	Thurs.	Fri.	
MINING III III A '' Laboratory Surveying III	.. .. .. ..	.. .. .. ..	.. .. .. ..	9.30 2—5 .. ..	.. .. .. ..	.. .. .. ..
ENGINEERING— Hydraulics Power Station	.. .. ..	.. .. ..	.. .. ..	2—5 .. ..	.. .. ..	.. .. ..
CHEMISTRY— Petroleum Refining	..	..	9.30—12.30	..	9.30—5	..
GEOLGY II B— Lectures and Laboratory Field-work (Mapping)	.. ..	.. ..	.. ..	10.30—12.30 ..	.. ..	10.30—12.30* 9.30—5†

COMPOSITION FEE: £42 10 6 \* Winter and Spring Terms.

† Summer Term.

## BIOLOGY AND CHEMISTRY OF FERMENTATION.

*Professor* : ADRIAN J. BROWN, M.Sc. ; F.R.S., F.I.C.

*Lecturer* : THOMAS H. POPE, B.Sc. ; F.I.C.

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This department of the University is founded to encourage research in all branches of knowledge connected with fermentation and the fermentation industries, and to provide courses of study in the technology of Malting, Brewing, and the fermentation industries generally.

The courses of instruction provided are :—

1. A Degree Course in the Biology and Chemistry of Fermentation.
  2. A Diploma Course providing instruction in the principles of all subjects connected with Malting and Brewing, and the fermentation industries generally.
  3. Certificate Courses for Brewers and for Maltsters who are unable to devote the time to study required for the Diploma Course.
  4. Shorter Courses of Lectures and practical work in the principles of Malting and Brewing.
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### DEGREE COURSE.

The Degree Course is suitable for those students who contemplate taking up Biological work in connection with such subjects as the Fermentation Industries, Agriculture, Bacteriology in connection with water supply and the treatment of sewage, etc. The course is also strongly recommended to students who contemplate qualifying as brewers' chemists. After taking the degree at the end of their third year of study, arrangements are made by which such students can take an advanced course of study in the Department of Brewing in their fourth year, following on which the Diploma in Brewing will be granted. The Degree Course is also suitable for students who are candidates for the Associateship of the Institute of Chemistry in the branch of Biological Chemistry.

**Requirements for the Degree of B.Sc. with Biology and Chemistry of Fermentation as a Principal or Double Subsidiary Subject.**

Candidates are required to matriculate in the Faculty of Science before entering on the courses of study for the degree,

*FIRST YEAR COURSE.*

Candidates in preparation for the Intermediate Examination at the end of the first year are required to attend courses of study in Chemistry and Elementary Biology, and in either Mathematics or Physics.

*SECOND AND THIRD YEAR COURSES.*

After passing the Intermediate Examination, candidates are required to take Biology and Chemistry of Fermentation as a principal subject, and Chemistry as a double subsidiary subject; or Chemistry as a principal subject, and Biology and Chemistry of Fermentation as a double subsidiary subject.

*SECOND YEAR COURSE.*

1. Biology and Chemistry of Fermentation. Vegetable Physiology and Morphology, with special reference to the Fungi (Course II Botany and the Special Course IIA, taken in the Botanical Department).
2. Chemistry.

*THIRD YEAR COURSE.*

1. Biology and Chemistry of Fermentation.
  - (a) Lectures and practical work, comprising a study of the Carbo-Hydrates and the special methods employed in their examination; and of the Proteins and their products of decomposition.
  - (b) Lectures and practical work, comprising a study of Enzymes and their actions.
  - (c) Lectures and practical work, comprising a study of the Micro-Organisms of Fermentation—their culture, classification, morphology, physiology, and chemical actions.

**FEE: £12 12s. od.**

2. Chemistry.

The third year course may also be taken as a single subsidiary subject for the degree of B.Sc. in Pure Science.

**DIPLOMA COURSES.**

The Diploma Courses extend over a period of three years. In the first year Elementary Inorganic Chemistry, Physics, and Botany are taken, with a modern language as an optional subject ; but this course of study is subject to alteration according to the student's previous education.

The second year's course includes advanced Chemistry, both inorganic and organic, with an extended course of laboratory work, practical Elementary Bacteriology, Engineering, and a short course of lectures on Geology.

The third year's course consists of lectures on the Technology of Brewing, and practical work in the Brewing Laboratory.

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**SPECIAL DIPLOMA FOR GRADUATES.**

Graduates who have taken the degree of B.Sc. with the Biology and Chemistry of Fermentation as a principal subject may obtain a Special Diploma in the Technology of Brewing after a further course of study of one year in the Department.

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**CERTIFICATE COURSES AND SHORTER COURSES.**

Certificate Courses and shorter courses of instruction in the Technology of Brewing and the Fermentation industries generally are also arranged.

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*For full information regarding the Diploma Course in Brewing and the shorter courses of study the student is referred to the special syllabus of the School of Brewing.*

The Laboratory of the Department is open from 9.30 a.m. to 5.30 p.m. for special study and research work, under the direction of Professor Adrian Brown, to whom applications should be made.

# FACULTY OF ARTS.

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## Syllabuses of Courses.

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### LATIN.

*Professor* : E. A. SONNENSCHEIN, M.A. ; D.Litt. (Oxon.)

*Lecturer* : C. D. CHAMBERS, M.A. (Oxon.).

*Assistant Lecturer in Classics* :

M. L. W. LAISTNER, B.A. (Cantab.).

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The University Courses in Latin for the ordinary B.A. degree (Courses I, II, and III) are designed to embrace a study of representative masterpieces of Latin literature which will be treated as literary wholes and from a literary point of view. These Courses bring the student into contact with typical specimens of Latin literature in the fields of epic, lyric, and didactic poetry, and of historical and philosophical prose, and thus provide a basis for the historical and comparative study of literature. At the same time the grammatical and philological study of Latin and the practice of composition are maintained and developed, mainly in connexion with the prose works selected under each course.

Course IV is reserved as an advanced and specifically linguistic course, in preparation for the M.A. Examination. The subjects read in this course are varied from year to year in accordance with the needs of students.

**VACATION READING.**—Students will find it of great advantage to read during the Vacation some at least of the books recommended for study in preparation for Courses I—III.

**Course I.*****THE EPIC, WITH SOME HISTORY.***

Mondays and Thursdays, at 2.30.

FEE: £2 12s. 6d.

- SUBJECTS: (1) Virgil, *Aeneid* IV and VI, with a literary study of the *Aeneid* as a whole.  
 (2) Livy, Book XXI, chapters 1—30.

**BOOKS RECOMMENDED :**

Virgil: *Aen.* I—VI, edited by Page (Macmillan's Classical Series).

*Latin Literature*, by Mackail (Murray).

Professor Sonnenschein's *New Latin Grammar* (Clarendon Press).

Students are recommended to read in preparation for Course I:—

Books I—VI of the *Aeneid* of Virgil in the verse translation of Rhoades (Longman).

MACKAIL, *Latin Literature* (Murray)—the literature of the Augustan Age (pp. 91—155).

OMAN, *Seven Roman Statesmen* (Arnold).

**Course II.*****LYRIC POETRY, WITH SOME HISTORY.***

Tuesdays and Thursdays, at 3.30.

FEE: £2 12s. 6d.

- SUBJECTS: (1) Select Lyrics of Horace and Catullus.  
 (2) Selections from Livy.

**BOOKS RECOMMENDED :**

Horace: *Odes*, edited by Page (Macmillan's Classical Series) or by Gow (Pitt Press); Students taking Latin as a principal subject for the B.A. are recommended to get the whole works of Horace, edited in one volume, by Page, Palmer, and Wilkins (Macmillan); Translations: verse, by De Vere (Bell), or Select Odes in W. Scott's Canterbury Poets.

Catullus : Select Poems, edited by Simpson (Macmillan's Classical Series) ; Translation : verse, by Martin (Blackwood).

Professor Sonnenschein's *New Latin Grammar* (Clarendon Press).

Students are recommended to read in preparation for Course II :—

*Select Odes of Horace*, translated in verse by DE VERE (W. Scott's Canterbury Poets).

*Catullus*, translated in verse by MARTIN (Blackwood).

MACKAIL, *Latin Literature* (Murray)—the chapters on the literature of the Republic (pp. 1—90).

### Course III.

#### DIDACTIC AND DRAMATIC VERSE; PHILOSOPHIC PROSE.

Tuesdays and Thursdays, at 2.30.

FEE : £2 12s. 6d.

SUBJECTS : (1) Horace : *Select Satires and Epistles*.

(2) Selections from one of Cicero's or Seneca's philosophical works.

(3) Plautus : *Rudens*.

#### BOOKS RECOMMENDED :

Horace : Complete works by Page, Palmer, and Wilkins (see Course II), or *Satires* alone, by Palmer, and *Epistles* alone by Wilkins (Macmillan's Classical Series) ; Translation of the *Epistles* in verse, by Conington (Bell).

Cicero : *Tusculan Disputations*, edited by Müller (Teubner).

Selections from Seneca : either the edition by Summers (Macmillan's Classical Series) or a Teubner text of part of the prose works.

Professor Sonnenschein's edition of the *Rudens* (*editio minor*), and *New Latin Grammar* (Clarendon Press).

Students are recommended to read in preparation for Course III :—

HORACE'S *Satires and Epistles*, translated in verse by CONINGTON (Bell).

MACKAIL, *Latin Literature* (Murray)—the literature of the Empire (pp. 171—286).

SENECA, *Morals*, a selection from his prose translated by CLODE (Camelot Series, published by W. Scott).

#### Course IV.

#### *ADVANCED COURSE ON LANGUAGE.*

Mondays, Tuesdays, Thursdays, and Fridays, at 3.30 ; additional hours by arrangement.

FEE : £5 5s. od.

The subjects of the Course will be chosen with a view to the M.A. Examination, and will include several plays of Plautus or Terence, with a study of Old Latin metres and grammar.

#### Composition Sets.

Sets will be formed for the practice of Latin Composition of various stages of difficulty, and will meet at the following hours :—Set 1 (a) Tuesdays, at 2.30 ; (b) Wednesdays, at 3.30 ; Set 2, Fridays, at 2.30 ; Set 3, Fridays, at 3.30. More advanced students will be taken separately, at hours to be fixed at the commencement of the Session.

#### BOOKS RECOMMENDED :

For Set 1 : *Third Latin Reader and Writer*, by Dix (Swan Sonnenschein and Co.).

For Sets 2 and 3 : *Latin Prose Composition*, by Hardie (Arnold).

FEE : £1 11s. 6d.

## *REQUIREMENTS FOR DEGREES.*

*Intermediate Arts Examination*: Course I.

*Ordinary B.A. Examination*:

- (i) When Latin is a principal subject: Courses II and III in successive years.
- (ii) When Latin is a subsidiary subject: either Course II or Course III.

*M.A. Examination*:

All candidates for the M.A. degree in Latin will be examined in the four following subjects:—

- (i) Composition.
- (ii) Unseen translation.
- (iii) Selected authors (see below).
- (iv) Latin literature and philology.

Candidates who offer Latin alone will be required to show a special knowledge of *four* Latin authors, to be selected by themselves and approved by the University. Candidates who offer Latin together with another subject will be required to show a special knowledge of only *two* Latin authors.

The subject of the dissertation required for the M.A. degree should be selected in consultation with the Professor as early in the Session as possible.

## HONOUR SCHOOL OF CLASSICS.

For regulations relating to the Honour School of Classics, see page 195. For the first examination in the School the following courses are recommended: Course II and Course III.

Special arrangements will be made for composition. Students of the School are also recommended to join the Reading Circle of the Birmingham and Midlands Branch of the Classical Association.

## TIME TABLE.

LATIN.	Mon.	Tues.	Wed.	Thurs.	Fri.
Course I	..	2.30	2.30*	3.30*	2.30
Course II	..	..	3.30	..	3.30
Course III	..	..	2.30	..	2.30
Course IV.	..	3.30	3.30*	..	3.30

\* Composition.

**GREEK.**

*Professor* : E. A. SONNENSCHEIN, M.A. ; D.Litt. (Oxon.).  
*Lecturer* : ST. GEORGE STOCK, M.A. (Oxon.).

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The University Courses in Greek for the ordinary B.A. Degree (Courses IA, IIA, III) are designed to embrace a study of representative masterpieces of Greek literature, which will be treated from a literary point of view and with reference throughout to their background of Greek life and art. In the Advanced Course (Course IV) there is a fuller treatment of the historical and archæological questions arising in connexion with the subject matter of the books read.

Two courses are also provided for Theological Students (Courses IB and IIB).

**VACATION READING.**—Students will find it of great advantage to read during the vacation some at least of the books recommended for study in preparation for the several degree courses.

**HOURS OF MEETING.**—The hours named in the following list of courses are only provisional, and may be altered if found to be inconvenient.

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**Course IA.*****HISTORICAL PROSE.***

Tuesdays at 4.30 and Wednesdays at 3.30.

FEE : £2 12s. 6d.

SUBJECTS : (1) The narrative portion of Thucydides III.  
 (2) Grammar.

**BOOKS RECOMMENDED :**

Thucydides, text by Stuart Jones, Clarendon Press,  
 Vol. I.

Professor Sonnenschein's *Greek Grammar* (Parallel  
 Grammar Series).

Students are recommended to read in preparation for Course I :—

BURY'S *History of Greece*, for Beginners (Macmillan).

BUTCHER'S *Demosthenes*, in "Classical Writers," edited by J. R. Green (Macmillan).

JEBB'S *Primer of Greek Literature* (Macmillan).

### Course IB.

#### *HELLENISTIC GREEK (ELEMENTARY).*

Mondays, Thursdays, and Fridays, at 3.30.

FEE : £2 12s. 6d.

SUBJECTS : (1) The Acts of the Apostles.  
(2) Grammar.

### Course IIA.

#### *THE DRAMA, WITH HISTORICAL OR ORATORICAL PROSE.*

Mondays and Wednesdays at 4.30.

FEE : £2 12s. 6d.

SUBJECTS : (1) Æschylus, *Agamemnon*, with a literary study of the Greek Drama.  
(2) Select Orations of Antiphon.  
(3) Grammar.

#### BOOKS RECOMMENDED :

Æschylus, edited by Sidgwick (*Scriptorum Classicorum Bibliotheca Oxoniensis*).

Students are recommended to read in preparation for Course II :—

ÆSCHYLUS, *The House of Atreus* (translation of the *Oresteia*), by Morshead (Kegan Paul).

Balaustion's Adventure, by ROBERT BROWNING (Smith, Elder and Co.).

*The Student's Manual of Greek Tragedy*, edited by Verrall (Swan Sonnenschein and Co.).

**Course II B.*****HELLENISTIC GREEK (ADVANCED).***

Mondays at 2.30, and Tuesdays at 3.30.

FEE : £2 12s. 6d.

SUBJECTS : (1) Epistle to the Romans, 1st and 2nd  
Epistles to the Corinthians, and Epistle  
to the Galatians.  
(2) Grammar.

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**Course III.*****THE EPIC, WITH PHILOSOPHICAL PROSE  
AND LITERARY CRITICISM.***

Tuesdays and Thursdays at 2.30.

FEE : £2 12s. 6d.

SUBJECTS : (1) Homer : Three books (to be selected at  
the first meeting of the class), with a  
literary study of the Iliad as a whole.  
(2) Plato : *Gorgias*.  
(3) Aristophanes : *Birds*.

**BOOKS RECOMMENDED :**

Plato : *Gorgias*, edited by Burnett (Vol. III of Plato  
in the Scriptorum Classicorum Bibliotheca Oxoniensis).

Aristophanes : *Birds*, edited by Merry (Clarendon  
Press).

Students are recommended to read in preparation for  
Course III :—

MURRAY's *Rise of the Greek Epic* (Clarendon Press), and JEBB'S  
*Development of Greek Poetry* (Macmillan).

PLATO, *Crito*, *Gorgias*, and *Phædo*, translated by JOWETT  
(Clarendon Press).

*The Greek View of Life*, by G. L. DICKINSON (Methuen).

## Course IV.

## ADVANCED COURSE.

Two or three hours weekly, by arrangement.

FEE: according to the number of hours.

The subjects of study in this course will be chosen with a view to the M.A. Examination.

## SUGGESTED SUBJECTS:

- (1) Pindar : *Pythian Odes*, with Pausanias, Book X.
- (2) Aristophanes : Select Plays.
- (3) Demosthenes : *Private Orations*.

## BOOKS RECOMMENDED:

Pindar : *Olympian and Pythian Odes*, edited by Gildersleeve (Macmillan); Translations: verse, by Morice (Kegan Paul); prose, by Myers (Macmillan).

Aristophanes : Text of complete works by Hall and Geldart (Clarendon Press); Translation in verse by J. H. Frere (Routledge), or by B. B. Rogers (Bell).

Demosthenes: Select Private Orations, by Paley and Sandys (Pitt Press).

## Composition Sets.

Sets will be formed for the practice of Greek Composition of various stages of difficulty, and will meet on Fridays, at 2.30, 3.30, and 4.30; and on Thursdays at 4.30. More advanced students (attending Courses III and IV) will be taken separately at hours to be fixed at the commencement of the session.

FEE: £1 11s. 6d.

*REQUIREMENTS FOR DEGREES.*

*Intermediate Arts Examination* : Course I (*A* or *B*).

*Ordinary B.A. Examination* :

- (i) When Greek is a principal subject : Courses II and III in successive years.
- (ii) When Greek is a subsidiary subject : either Course II (*A* or *B*) or Course III.

*M.A. Examination* :

All candidates for the M.A. degree in Greek will be examined in the four following subjects :—

- (i) Composition.
- (ii) Unseen Translation.
- (iii) Selected authors (see below).
- (iv) Literature and Philology.

Candidates who offer Greek alone will be required to show a special knowledge of *four* Greek authors, to be selected by themselves and approved by the University. Candidates who offer Greek together with another subject will be required to show a special knowledge of only *two* Greek authors.

The subject of the dissertation required for the M.A. degree should be selected in consultation with the Professor as early in the session as possible.

*HONOUR SCHOOL OF CLASSICS.*

For regulations relating to the Honour School of Classics, see page 195. For the first examination in the School the following courses are usually recommended : Course II and Course III.

Special arrangements will be made for composition. Students of the School are also recommended to join the Reading Circle of the Birmingham and Midlands Branch of the Classical Association.

## TIME TABLE.

*The hours put down in this Time Table are suggested times only, and are subject to alteration by arrangement at the beginning of the session.*

GREEK.	Mon.	Tues.	Wed.	Thur.	Fri.
Course IA ..	..	..	4.30	3.30	..
Course IB ..	..	..	3.30	..	3.30
Course IIA..	..	..	4.30	..	2.30†
Course IIB..	..	..	2.30	3.30	4.30†
Course III ..	..	..	..	..	..
Course IV*..	..	..	..	..	..

\* Hours to be fixed at the beginning of the Session (three hours for books and one hour for Composition).

† Composition.

## ENGLISH LANGUAGE AND LITERATURE.

*Professor* : E. DE SÉLINCOURT, M.A. ; D.Litt. (Oxon.).

*Lecturer* : M. MACMILLAN, D.Litt. ; M.A. (Oxon.).

*Assistant Lecturer* : GORDON HISLOP, M.A.

### Course I.

PROFESSOR DE SÉLINCOURT, DR. MACMILLAN, AND  
MR. HISLOP.

#### A.—*English Literature.*

Mondays, 10.30 ; Tuesdays, 11.30.

The general history of English Literature from 1558-1625, with a study of the following texts :—

MARLOWE : *Dr. Faustus*.

SPENSER : *Shepherd's Calendar, Faerie Queene VI.*

SIDNEY : *Defence of Poesie*.

BACON : *Essays I—XX.*

SHAKESPEARE : *Richard II, Twelfth Night, Macbeth.*

*Golden Treasury of Songs and Lyrics*, Book I.

#### B.—*English Language.*

Fridays, at 9.30.

1. Elementary Old English, with a study of Cook's *First Book on Old English* (VII ; X-XII). (First Term.)
2. Elementary Middle English, with a study of Chaucer's *Prologue to the Canterbury Tales, Knight's Tale*, and *Nun's Priest's Tale*. (Second Term.) Chaucer will be studied from a literary as well as from a linguistic point of view.
3. A short sketch of the History of the English Language. (Third Term.)

FEE : £4 4s.

**Course II.**

PROFESSOR DE SÉLINCOURT, DR. MACMILLAN, AND  
MR. HISLOP.

**A.—English Literature.**

Tuesdays and Thursdays, at 11.30.

The general history of English Literature from 1558-1625,  
with a study of the following texts :—

SACKVILLE : *Induction.*

MARLOWE : *Dr. Faustus, Hero and Leander I.*

SPENSER : *Shepherd's Calendar, Faerie Queene III and IV.*

SIDNEY : *Defence of Poesie.*

DANIEL : *Defence of Rhyme.*

SHAKESPEARE : *Richard II, Twelfth Night, Hamlet, Macbeth.*

BEN JONSON : *Alchemist, Discoveries.*

WEBSTER : *Duchess of Malfi.*

BACON : *Essays.*

*Sixteenth Century Anthology*, ed. by A. Symons.

**B.—English Language.**

Fridays, at 11.30.

SWEET'S *Anglo-Saxon Reader* (8th Ed.) VI-X, XV.

MORRIS AND SKEAT'S *Specimens of Early English*, Part I,  
pp. 40-50; 110-128; 172-193.

CHAUCER : *Tales of Prior, Sir Thopas, Clerk and Squire.*

**FEE : £4 4s.**

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**Course III.**

PROFESSOR DE SÉLINCOURT AND DR. MACMILLAN.

**A.—English Literature.**

Tuesdays and Thursdays, at 11.30.

The history of English Literature from 1558-1625, with  
a study of the texts prescribed for Course II. A general  
but first-hand acquaintance with the main authors of the  
period will be expected.

B.—*English Language.*

Wednesdays, at 10.30.

SWEET'S *Anglo-Saxon Reader*, XVI, XXI, XXIV, XXV;  
 MORRIS AND SKEAT'S *Specimens of Early English*, Part II (I, IV,  
 XI, XV, XVI);  
 CHAUCER, *Minor Poems* (ed. Skeat), V-XX.

FEE: £4 4s.

## Course IV.

PROFESSOR DE SÉLINCOURT, PROFESSOR MUIRHEAD, AND  
 DR. MACMILLAN.

Mondays, 11.30; other hours to be arranged.

FEE: £3 13s. 6d.

A.—The history of English Literature from the time of Chaucer to the present day.

*This work, being chiefly of the nature of revision, is not systematically undertaken in Course IV, but an attempt will be made to fill in the more serious gaps left by the students in their reading when they were attending Courses II and III.*

- B. Old and Middle English Texts, with a history of English Literature before Chaucer.
- C. Germanic Philology.
- D. Shakespeare, with a study of the Sonnets, and five selected plays (*Two Gentlemen of Verona*, *Henry IV*, (Part I), *Twelfth Night*, *Macbeth*, *A Winter's Tale*).
- E. English Literature studied in relation with Latin, French, or German Literature.
- F. A special study of Chaucer and Spenser.
- G. The Philosophy of Plato, with special reference to the Ion, Symposium, Meno, Phædo, and Phædrus.

VACATION READING.—The subjects for Vacation Reading in English are the texts recommended in connexion with the various courses.

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### *REQUIREMENTS FOR DEGREES.*

#### *Intermediate Arts Examination : Course I.*

##### *B.A. Degree :*

Students who take English as a principal subject at the B.A. Degree Examination are required to attend Courses II and III in successive years. Students who take English as a subsidiary subject may select *either* Course II or Course III.

#### *M.A. Degree : Course IV.*

Students who desire to take the M.A. Degree in English alone are required to pass an examination in sections A and F of Course IV, and in two other sections selected from sections B, C, D, E, G.

Students who select English as *one* of the subjects for the M.A. Degree are required to pass an examination in two of the above sections, of which A is compulsory.

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### HONOUR SCHOOL OF MODERN LANGUAGES.

Students who select English as a subsidiary subject are required to pass an examination in Sections A and two other sections of Course IV.

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### HONOUR SCHOOL OF ENGLISH LITERATURE.

For regulations relating to the Honour School of English Literature, see page 197.

## TIME TABLE.

ENGLISH.		Mon.	Tues.	Wed.	Thurs	Fri.
Course I	.. ..	.. 10.30	11.30	..	..	9.30
Course II	.. ..	.. ..	11.30	..	11.30	11.30
Course III	.. ..	.. ..	11.30	10.30	11.30	..
Course IV*	.. ..	.. 11.30	..	..	..	..
Informal Instruction	.. ..		9.30 to 11.30	..	9.30 to 11.30	..

\* Other hours to be arranged.

## FRENCH LANGUAGE AND LITERATURE.

*Professor* : HENRI CHATELAIN, M.A.; agrégé de grammaire; docteur ès lettres.

*Lecturer* : PAUL DEMEY, licencié ès lettres.

*Assistant Lecturer* : H. ASHTON, B.A. (Cantab.), docteur d'Université (Paris).

*Assistant for French Conversation* :

MDLLE. MARGUERITE SIREDEY.

### Course I.

#### PREPARATION FOR INTERMEDIATE EXAMINATION.

FEE : £3 13s. 6d.

(1) Tuesdays, 3-30 and 4-30 : Prose Composition, Free Composition, Exercises on Grammar of Modern French (Accidence and Syntax).

(2) Mondays, 3.30, and Thursdays, 9.30 : Reading, oral translation, grammatical and literary explanation of the following works :—

*Cours de Lecture expliquée*, par LÉON ROBERT (Paris, Armand Colin, in-16, cart., 3f.)

CHATEAUBRIAND : *Mémoires d'Outre-Tombe* (Nelson, 1s.)

*Les Cent meilleurs poèmes de la langue française* (Gowans and Gray); outlines of French versification.

Outlines of French Literature in the 18th and 19th centuries; Comparison of Classicism with Romanticism.

(3) CONVERSATION CLASS (by arrangement); Reading, elocution, elements of modern phonetics, differences between English and French pronunciation and elocution.

Prescribed book: BRUNOT ET BONY, *Méthode de langue française*, 3<sup>e</sup> livre (Paris, A. Colin, in-8<sup>o</sup>, 1f. 60).

Conversations and discussions on social life and civilisation in the 18th and 19th centuries; comparison of life and institutions before and after the French Revolution.

P. BONNEFON, *La Société française du XVIII<sup>e</sup> siècle* (Paris, Arm. Colin, in-12).

ALB. MÉTIN, *Cours d'instruction civique* (Paris, Masson et Cie., in-16, cart., 1f. 50).

Questions on Mondays' and Fridays' lectures.

VACATION READINGS, in preparation for Course I, and to be tested at the terminal examinations:—

MICHELET: *Jeanne d'Arc*.

MUSSET: *Fantasio, Il faut qu'une porte soit ouverte ou fermée* (Blackie, 8d.).

LAMARTINE: *Graziella* (Paris, Hachette, in-16, 1f. 25).

## Course II.

FEE: £3 13s. 6d.

Mondays, 10-30, Wednesdays and Thursdays, 9-30.

The Lectures are given in French.

(1) Advanced French Composition.

(2) French Classical Literature till 1789; the classic prose writers between 1660 and 1715; the dramatic poets of the classical period with special references to the chief characteristics of moral psychology, observation of characters, in various genres.

CORNEILLE, *Polyeucte*, éd. Minouflet (H. Didier, cart., 1f.).

MME. DE SÉVIGNÉ, *Lettres Choisies*, éd. Régnier (Hachette, cart., 2f.).

MOLIÈRE, *Les Femmes Savantes*, éd. Crouzet (Didier, cart., 1f.).

*Morceaux choisis des Auteurs Français*, 2<sup>e</sup> cycle, par CH.-M. DES GRANGES (Hatier, relié, 5f.).

(3) Historical French grammar; revision of moods and tenses; evolution of the syntax, vocabulary, and the history of French pronunciation since the 17th century.

Principles and short history of French versification (comparison of vocabulary, syntax and style in prose and poetry).

M. GRAMMONT: *Abrégé de versification française* (Arm. Colin, in-16, 2f.).

(4) CONVERSATION CLASS (Winter and Summer Terms—by arrangement): Formation of words; synonyms; homonyms, gallicisms, proverbs; questions on Mondays' and Thursdays' lectures.

BRUNOT ET BONY, *Méthode de langue française*, 3<sup>e</sup> livre (A. Colin, cart., 1f. 60).

*Scènes, récits et portraits, XVII<sup>e</sup> et XVIII<sup>e</sup> siècle*, éd. L. BRUNEL (Hachette, cart., 2f.).

## BOOK RECOMMENDED :—

É. ABRY, C. ANDRÉ et P. CROUZET, *Histoire Illustrée de la littérature française* (Didier, broché 5f., relié 5f. 50).

VACATION READINGS, in preparation for this Course, and to be tested at the terminal examinations :—

*Lettres de Paul-Louis Courier* (Blackie, 1/6).

LESAGE : *Crispin rival de son maître* (Blackie, 8d.).

## Course III.

Mondays, 2-30, Wednesdays, 12-30, and Thursdays, 10-30.

FEE : £3 13s. 6d.

The Lectures are given in French.

(a) Advanced French Composition and Essay Writing.

(b) Elements of French Phonology (Phonetics and Morphology, from XI<sup>th</sup> to XVI<sup>th</sup> century).

History of the French Language from 1500 till 1660 ; evolution of prose and versification within the same period ; formation of classical rules in poetry and prose writing.

## TEXT BOOKS :

*Extraits de la Chanson de Roland*, par G. Paris (Hachette, pet. in-16, 1f. 50).

MONTAIGNE, *Œuvres choisies*, éd. R. Radouant (Paris, Hatier, relié, 4f.).

*Les chefs-d'œuvre lyriques de Ronsard et de son école* (Gowans et Gray, paper, 6d., cloth, 1s.).

(c) Revision of French Literature, with special reference to the "Evolution des Genres" ; Explanation, critical appreciation of the following texts :—

CORNEILLE, *Polyeucte*, éd. Minouflet (Didier, cart., 1f.).

*Orateurs et Moralistes*, par J. VIANEY (Paris, Hatier, cart., If. 60).

MUSSET, *Les Caprices de Marianne*, éd. G. Michaut (Paris, Soc. fr. d'éd. fr. et étr., in-12).

V. HUGO : *Les Contemplations* (Nelson).

(d) CONVERSATION CLASS (Spring Term).

*Morceaux choisis des auteurs français*, éd. CH.-M. DES GRANGES 2<sup>e</sup> cycle (Paris, Hatier, relié, 5f.).

BOOK RECOMMENDED :

F. BRUNETIÈRE : *Manuel d'histoire de la littérature française* (Delagrave).

VACATION READINGS in preparation for this Course, and to be tested at the terminal examinations :—

CHATEAUBRIAND : *Mémoires d'Outre-Tombe* (Nelson)  
SAINTE-BEUVE : *Portrait of Molière* (Blackie, 4d.).

#### Course IV.

The lectures are given in French.

Tuesday, Thursday, and Friday by arrangement.

(a) Advanced Composition and Essay Writing.

FEE : £1 11s. 6d.

(b) French Philology, old French Morphology and Syntax (Winter and Spring Term); Questions of French Literature of the Mediæval Ages (Summer Term).

SCHWAN-BEHRENS, *Grammaire de l'ancien français*, the French translation from the 4th German edition, 1904, or the 9th German edition, 1911 (Paris, Picard, in-8).

FEE: £1 11s. 6d.

(c) Old French Texts (XI<sup>th</sup>—XIII<sup>th</sup> Centuries), CONSTANS, *Chrestomathie* (Welter, 7f. 50); ADAM LE BOSSU, *Le Jeu de la feuillée*, éd. E. Langlois (Champion, 2f.).

FEE: £1 11s. 6d.

(d) French Language and Literature at the end of the Middle Ages (XIV<sup>th</sup> and XV<sup>th</sup> centuries), in comparison with the period of the Renaissance.

FEE: £1 11s. 6d.

(e) Authors and History of Literature, XVII<sup>th</sup>, XVIII<sup>th</sup> and XIX<sup>th</sup> centuries (joining Course III<sup>r</sup>).

FEE: £1 11s. 6d.

(f) Constitution and Institutions of Modern France.

FEE for the Term: 10s. 6d.

(g) Questions on French Literature from 1830 to 1890.

FEE: £1 11s. 6d.

(h) Debates; Analysis of works dealing with the leading men of the 19th century (chiefly contemporaries) and discussions on them (Winter and Spring Terms); Literary explanation of selected authors (Summer Term).

FEE: £1 11s. 6d.

*REQUIREMENTS FOR DEGREES.*

*Intermediate Examination in Arts* : Course I.

*B.A. Degree* :

(a) When French is a Principal Subject : Courses II and III in successive years.

(b) When French is a subsidiary Subject : Course II.

*M.A. Degree* :

(a) Candidates who desire to take the M.A. Degree in French alone will be required to take the following eight subjects :

- (i) French Essay and Composition.
- (ii) Unseen Translation.
- (iii) Selected Authors.
- (iv) History of French Literature (XIXth century).
- (v) French History and Institutions.
- (vi) Old and Middle French Texts.
- (vii) French Philology.
- (viii) A selected period of French Literature.

(b) Candidates who desire to take the M.A. Degree in French, together with another subject, will be required to select four subjects from the above list, of which (i) and (ii) are compulsory.

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HONOUR SCHOOL OF MODERN LANGUAGES.

For regulations relating to the Honour School of Modern Languages, see page 193.

The following courses are recommended :

- (a) If French is the principal subject :—

First year : Courses II, III, IVb.

Second year : Courses III, IV c, d, g, h.

Third year : Course IV.

(b) If French is the subsidiary subject :—

- First year : Courses II and IIIc.  
 Second year : Courses III and IVg.  
 Third year : Course IVa, b, g, h.

*Cercle Français*.—Eight meetings (or more) are held a year, and only French is spoken. Tea is followed by a paper, causerie, debates, French music, or short plays, with opportunities for conversation.

#### TIME TABLE.

FRENCH.	Mon.	Tues.	Wed.	Thurs	Fri.
Course I—					
Section A .. ..	3.30	3.30	..	9.30	
Section B .. ..	4.30	4.30	..		
Course II .. ..	{ 9.30 10.30	..	9.30	9.30	..
Commerce—3rd year .. ..	10.30*	..	..	..	10.30
Course III .. ..	2.30	..	12.30	10.30	..
Course IV .. ..	2.30* 4.30	2.30* 3.30*	12.30 ..	2.30* 3.30*	9.30 10.30
<i>(Subject to modification at the beginning of each term, by arrangement with the Students.)</i>					
Conversation Classes by arrangement at the beginning of the Session.					

\* Or by arrangement.

## GERMAN LANGUAGE AND LITERATURE AND GERMANIC PHILOLOGY.

*Professor* : KARL WICHMANN, M.A. ; Ph.D. (Kiel).

*Lecturer* : FRANCIS E. SANDBACH, M.A., Ph.D. (Strass.).

*Special Lecturer in Commercial German* :

F. E. SANDBACH, M.A., Ph.D.

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### FIRST COURSE FOR COMMERCE STUDENTS.

DR. SANDBACH.

Mondays, Thursdays, and Fridays, at 2.30.

FEE : £3 13s. 6d.

K. Wichmann : Am Rhein (Swan Sonnenschein).

Kuno Meyer : German Grammar (Swan Sonnenschein)

W. Stuart MacGowan ; Second German Reader and Writer (Swan Sonnenschein).

### VACATION READING :—

PITMAN'S *German Commercial Reader*, pp. 1-72.

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### COURSES FOR SCIENCE STUDENTS.

Pure Science : Tuesdays and Fridays, at 9.30.

Civil Engineering : Tuesdays and Thursdays, at 11.30.

Mechanical and Electrical Engineering : Tuesdays and Thursdays, at 10.30.

Metallurgy : Mondays and Fridays, at 10.30.

Mining and Petroleum Mining : Wednesdays and Thursdays, at 12-30.

Biology : Two hours a week, to be arranged at the beginning of the Session.

FEE : £2 12s. 6d

- H. G. Fiedler and F. E. Sandbach, First German Course for Science Students (De la More Press).
- H. G. Fiedler and F. E. Sandbach, Second German Course for Science Students (De la More Press).

### Course I.

DR. SANDBACH.

FEE : £3 13s. 6d.

(a) Mondays at 11.30 : German Accidence, Syntax, and Composition.

- Kuno Meyer : German Grammar (Swan Sonnenschein).
- H. G. Fiedler : Third German Reader and Writer (Swan Sonnenschein).

(b) Thursdays at 3.30 : Conversation based on Kron, German Daily Life (Dent), Dictation, and Translation at sight.

(c) Fridays at 3.30 : Reading and Translation of —

- Elster : Zwischen den Schlachten (Macmillan).
- Heyse : Der verlorene Sohn (Neuer Deutscher Novellenschate, No. 23).
- Wildenbruch : Harold (Rivington).

### VACATION READING :—

- W. H. DAWSON : *Germany at Home* (George Newnes and Co.).  
(For Art Students), STORM : *Immensee* ; SEIDEL, *Leberecht Hühnchen*.
- (For Commerce Students) PITMAN'S German Commercial Reader, pp. 73-197.

**Course II.**  
**DR. SANDBACH.**

FEE : £3 13s. 6d.

- (a) Mondays at 3.30 : Conversation based on—  
Kron : German Daily Life (Dent).
- (b) Thursdays at 3.30 : Reading of—  
Riehl : Kulturgeschichtliche Novellen (Pitt Press).  
Goethe : Egmont.  
Grillparzer : Sappho
- (c) Fridays at 4.30 : Composition, Revision of Accidence and Syntax.

**VACATION READING :—**

- K. FRANCKE, *Social Forces in German Literature* (Bell and Sons).
  - S. WHITMAN : *Imperial Germany* (Trübner and Co.).
  - BEHAGHEL-TRECHMANN : *A Short Historical Grammar of the German Language* (Macmillan and Co.).
  - GOETHE's *Götz von Berlichingen*, translated by Sir Walter Scott (Bohn's Library).
  - SCHILLER's *Wallenstein*, translated by Coleridge (Bohn's Library).
  - FIEDLER : *The Oxford Book of German Verse* (Clarendon Press).
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**Course III.—A. Arts.**

PROFESSOR WICHMANN AND DR. SANDBACH.

FEE : £3 13s. 6d.

- (a) Mondays at 4.30 : Reading of—  
Goethe : Faust, I Teil.  
Schiller : Braut von Messina.  
Ludwig : Zwischen Himmel und Erde.
- (b) Tuesdays, at 4.30 : Composition.
- (c) Thursdays, at 4.30 : Conversation based on Kluge's *Geschichte der deutschen National-Literatur*.

In the Classes of Course III only German will be spoken.

## VACATION READING :—

Three of the following :—

- W. SCHERER : *Geschichte der deutschen Literatur* (Berlin, Weidmann).
- F. PAULSEN : *Die Deutschen Universitäten* (Berlin).
- O. WEISE : *Unsere Muttersprache* (Leipzig, Teubner).
- G. H. LEWES : *The Life and Works of Goethe*.
- THOMAS CARLYLE : *The life of Friedrich Schiller*.
- J. R. SEELEY : *Goethe Reviewed after Sixty Years* (London, Seeley and Co.).
- FIEDLER : *The Oxford Book of German Verse* (Clarendon Press).
- GOETHE'S *Faust* in the original, and Sir Theodore Martin's Translation.
- SCHILLER : *Wallenstein I*.
- LESSING : *Nathan der Weise*.
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## Course III.—B. Commerce.

DR. SANDBACH.

FEE : £3 13s. 6d.

- (a) Mondays at 4.30 : Reading of typical examples of commercial and industrial literature, e.g., Voigt, Deutschland und der Weltmarkt, Band I ; Deutsche Wirtschaftszeitung.
- (b) Tuesdays at 4.30 : Composition.
- (c) Thursdays at 10.30 : Commercial Correspondence ; Graham and Oliver, German Commercial Practice, Part I (Macmillan).
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## Course IV.

## LITERATURE.

PROFESSOR WICHMANN.

- (a) Mondays at 11.30 : Lectures (delivered in German) on the German Novel of the 19th century.

I. Der poetische Realismus.

Immermann, Alexis, Sealsfield.

Gotthelf, Stifter, Ludwig.

Freytag, Fritz, Reuter, Storm, Keller, Raabe.

Gutzkow ; Auerbach.

C. F. Meyer.

- II. Die Münchener Schule.  
Heyse, Scheffel, Dahn.
- III. Moderner Realismus und Naturalismus.  
Fontane, Rosegger, Ebner-Eschenbach, Hansjakob.  
Sudermann, Schnitzler.  
Hauptmann, von Polenz, Thomas Mann.  
Frenssen, Herzog, von Ompteda, Ricarda Huch.  
Clara Viebig, Helene Böhlau.

FEE: £1 11s. 6d.

### *OUTLINES OF GERMAN HISTORY.*

(b) Thursdays at 5.30, Spring Term.

PROFESSOR WICHMANN.

These lectures will be delivered in English or German, and the following subjects will be dealt with :—

Ancient Germany. Germany and Romans. Period of Migrations.

The Merovingian and Carlovingian Periods. Charlemagne.

Germany and Christianity.

Saxon Emperors, Henry I., Otto I. Foundation of Towns.

The Hohenstaufen Emperors. Frederick Barbarossa. Emperors and Popes. Germany and Italy. Times of Chivalry. Crusades.

Decline of the Empire. Towns and Guilds. Country and Peasantry. Inventions and Culture. Industry and Commerce. The Hansa.

The Reformation. Luther. The Thirty Years' War.

Brandenburg-Prussia. The Great Elector.

Frederic the Great. Seven Years' War. Philosophy and Literature.

Times of Napoleon I. Fall of the Old German Empire. War of Liberation.

Making of Modern Germany. The year 1848. The Zollverein. The German Confederation. Bismarck. Prussia and Austria. The North German Confederation. Germany and France.

The New Empire. Constitution. The Empire and the States. Industrial and Commercial Development. Army and Navy. Education. Currents of Thought.

FEE : 10s. 6d.

### *PHILOLOGY.*

PROFESSOR WICHMANN AND DR. SANDBACH.

(c) Mondays at 12.30 : Germanic Philology. Lectures will be given (in English) on the principles and methods of the Science of Language and the history and philology of the Germanic languages, with special reference to the relation of English and German. The Gothic version of the Gospels will be read.

FEE : £1 11s. 6d.

(d) Mondays at 12.30 : Advanced Gothic ; Interpretation of the Gothic version of the Gospels ; Continuation of Germanic Philology.

FEE : £1 11s. 6d.

(e) Mondays at 10.30 : Old High German Grammar, with Interpretation of O.H.G. texts.

FEE : £1 11s. 6d.

(f) Tuesdays at 10.30 ; Introduction to the study of Middle High German and Historical German Grammar. Reading of easy M.H.G. texts.

FEE : £1 11s. 6d.

(g) Thursdays, at 3.30 : Interpretation of more difficult M.H.G. and sixteenth century texts.

FEE : £1 11s. 6d.

### *SEMINAR.*

(h) Tuesdays at 3.30 : Discussion of Literary and Philological Problems ; Introduction to Bibliography and Methods of Research.

FEE : £1 11s. 6d.

(i) Tuesdays at 4.30 : Composition and Essay Writing.

### *REQUIREMENTS FOR DEGREES.*

*Intermediate Examination in Arts :* Course I.

*B.A. Degree :*

(a) When German is a principal subject : Courses II and III, in successive years.

(b) When German is a subsidiary subject : Course II.

*M.A. Degree :*

(a) Candidates who desire to take the M.A. Degree in German alone will be required to take the following *eight* subjects :—

- (i) German Essay and Composition.
- (ii) Unseen Translation.
- (iii) Selected Authors.
- (iv) History of German Literature.
- (v) German History and Institutions.
- (vi) Old and Middle High German Texts.
- (vii) Germanic Philology.
- (viii) A selected period of German Literature.

(b) Candidates who desire to take the M.A. Degree in German together with another subject will be required to select four subjects from the above list, of which (i) and (iii) are compulsory.

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## HONOUR SCHOOL OF MODERN LANGUAGES.

For regulations relating to the Honour School of Modern Languages, see page 193.

The following courses are recommended :—

(a) If German is the principal subject :—

First year : Courses II<sub>b</sub>, c, III, IV<sub>b</sub>, c, f.

Second year : Courses III<sub>a</sub>, c, IV<sub>a</sub>, b, e, g, h, i.

Third year : Courses III<sub>a</sub>, c, IV<sub>a</sub>, d, e, g, h, i.

(b) If German is the subsidiary subject :—

First year : Courses II and III<sub>a</sub>.

Second year : Courses III and IV<sub>a</sub>, b.

Third year, Courses III, IV<sub>a</sub>.

All students are advised to join the *Deutscher Verein*.

## TIME TABLE.

COURSE.	Mon.	Tues.	Wed.	Thurs.	Fri.
Commerce Course .. ..	2.30	..	..	2.30	2.30
Course for Science Students .. ..	10.30 10.30 11.30	9.30 10.30 11.30	12.30	10.30 11.30 12.30	9.30 10.30
Course I .. ..	11.30	..	..	3.30	3.30
Course II .. ..	3.30	..	..	3.30	4.30
Course IIIA .. ..	4.30	4.30	..	4.30	..
Course IIIB. .. ..	4.30	4.30	..	10.30	..
Course IV .. ..	10.30 11.30 12.30	10.30 3.30 4.30	..	3.30 5.30	..

## SPANISH AND ITALIAN.

*Lecturer*: F. DE ARTEAGA, M.A.; M.A. (Oxon.).

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### SPANISH.

#### Course I.

Tuesdays, Thursdays, and Saturdays, at 10.30

FEE: £3 13s. 6d.

#### WINTER TERM.

Accidence, Elementary Syntax. Easy Conversation.  
Arteaga's *Practical Spanish*.

#### SPRING TERM.\*

Advanced Syntax. Idioms. Conversation.  
Arteaga's *Spanish Reader*.

#### SUMMER TERM.

Composition. Proverbs.  
Calderón, *El Alcalde de Zalamea*.

#### Course II.

Tuesdays, Thursdays, and Saturdays, at 11.30.

FEE: £3 13s. 6d.

#### WINTER TERM.

Advanced Composition. Letter-Writing Spanish Readings.

#### SPRING TERM.

Lectures on Spanish Literature: *Cervantes*, *Calderón*, and *Ruiz Aguilera*.

#### SUMMER TERM.

Lectures on Spanish History (Spain from 1454 till 1517, and from 1759 till 1788.)

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\*From this Term the Classes will be conducted in Spanish.

**Course III.**  
**COMMERCE.**

Tuesdays and Thursdays, at 12.30.

FEE : £2 12s. 6d.

**WINTER TERM.**

Commercial Correspondence.

**SPRING TERM.**

Commercial Geography.

**SUMMER TERM.**

Spanish Institutions.

**M.A. COURSE (hours to be arranged) :—**

Cervantes : *El Quijote*, Parte primera.

Calderón : *El Alcalde de Zalamea*, *La Vida es sueno*.

Hurtado de Mendoza : *Lazarillo de Tormes*.

Romancero del Cid.

Pérez Galdós : *Miau*.

Nuñez de Arce : *Gritos del combate*.

The Literary History of Spain in the XVIth and XVIIth centuries.

Spanish Essay.

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**ITALIAN.**

**Course I.**

Tuesdays and Thursdays, at 3.30.

FEE : £2 12s. 6d.

**WINTER TERM.**

Accidence. Elementary Grammar. Easy Conversation.

Sauer-Artcaga, *Italian Conversation Grammar*. Hecker,  
*Il Piccolo Italiano*.

**SPRING TERM.\***

Advanced Syntax. Idioms. Conversation.

De Amicis, *Alle Porte d'Italia*.

**SUMMER TERM.**

Composition. Proverbs.

Fogazzaro : *Daniele Cortis*.

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\*From this Term the Classes will be conducted in Italian.

**Course II.**

Tuesdays and Thursdays, at 2.30.

FEE : £2 12s. 6d.

**WINTER TERM.**

Reading of *L'Inferno* of Dante.

**SPRING TERM.**

Reading of *Il Purgatorio*.

**SUMMER TERM.**

Reading of *Il Paradiso*.

In this Course explanations and commentaries in Italian will be given.

**Course III.**

Manzoni, *I Promessi Sposi*.

**TIME TABLE.**

COURSE.	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.
Spanish—						
Course I ..	..	..	10.30	..	10.30	..
Course II	..	..	11.30	..	11.30	..
Course III	..	..	12.30	..	12.30	..
M.A. Course				(Hours to be arranged.)		
Italian—						
Course I ..	..	..	3.30	..	3.30	..
Course II	..	..	2.30	..	2.30	..
Course III.	..			(Hours to be arranged.)		

## PHILOSOPHY.

*Professor* : JOHN HENRY MUIRHEAD, M.A. ; M.A. (Oxon.).  
LL.D. (Glasgow).

*Lecturer* : JOHN W. HARVEY, M.A. (Oxon.).

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### Course I.

#### *LOGIC.*

The aim of this Course is to familiarise students with the general conditions of right reasoning in ordinary life, and in the observational and experimental sciences. (A good deal of time is given to the analysis of familiar types of argument.)

*Lecture days* :—By arrangement ; three weekly.

*FEE* : £3 13s. 6d.

*Logic is the science of the justification of assertions.*

Preliminary arrangements. (i) Orderly statement of assertions ; Doctrine of Propositions. (ii) Meaning in assertion ; Doctrine of Terms.

*Justification consists of Argument.*

Forms of deductive argument. Deduction and Induction. Induction = justification of hypotheses. Support of hypotheses by observation and testimony, by accumulation of instances, by analogy, by Mill's methods. Fallacies

*The Nature of Assertion and Argument.*

Notes on the Theory of Knowledge.

**TEXT BOOKS.**—*An Introductory Logic*, by EDWIN CREIGHTON.

**BOOKS RECOMMENDED FOR CONSULTATION.**—Mill's *System of Logic* ; Keynes's *Formal Logic* ; Jevons's *Principles of Science* ; Joseph's *Introduction to Logic* ; Boyce Gibson's *Problem of Logic* ; MELLONE'S *Introductory Text Book of Logic*.

**PREPARATORY READING.**—Students intending to take this course should make themselves familiar with Jevons's *Primer* (Macmillan), and with the chapters 3 to 9 and 13 to 15 in Creighton's *Introductory Logic*.

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## Course II.

### *MENTAL PHILOSOPHY.*

This Course is given in alternate years. It will be given next in Session 1915-16. Its aim is to give such an analysis of the chief elements in consciousness as may form an introduction to Mental Philosophy on the one hand and to the Principles and Practice of Education on the other.

*Lecture Days* :—By arrangement; three weekly.

FEE: £3 13s. 6d.

**GENERAL ANALYSIS OF MIND.**—The living complex self. Body and Mind. Instinct and Experience. Interest and Attention. Plasticity and Retentiveness. Ultimate modes of being conscious.

**LEVELS OF COGNITIVE EXPERIENCE.**—Sensation. Perception. Images, Association, and Memory. Constructive Imagination and Thought. Language.

**FEELING.**—Pleasure and pain. Emotions. Sentiments. Value-feelings. Fantasy-feelings.

**CONATION.**—Desire. Will. Problem of Free Will.

**TEXT-BOOKS.**—Stout's *Manual of Psychology* and James's *Text-book of Psychology*.

**RECOMMENDED FOR CONSULTATION.**—Höffding's *Outlines of Psychology*; Ward's articles in *Encyclopædia Britannica*; Stout's *Analytic Psychology* and *Groundwork of Psychology*; Mitchell's *Structure and Growth of Mind*.

**Course III.*****MORAL PHILOSOPHY.***

The aim of this Course is to give an outline of the leading principles of moral and social obligation as at present understood, and to illustrate them by bringing them into connexion with typical historical theories and modern problems. This course is given in alternate years. It will be given next in Session 1914-15.

*Lecture Days.*—Three weekly by arrangement.

FEE : £3 13s. 6d.

I.—SCOPE, CONTENTS AND METHOD OF ETHICS : DEVELOPMENT OF CONDUCT, in the race and in the individual. PSYCHOLOGY OF CONDUCT. Habit. Conscience in the Individual. Will and Desire. The General Will. THE STANDARD OF MORAL JUDGMENT.

II.—THEORIES OF ETHICS.—GREEK ETHICS : Socrates and Plato, Aristotle, Stoics, Epicureans, Neo Platonism. MEDIÆVAL ETHICS : Thomas Aquinas. The Law of Nature. MODERN ETHICAL THEORIES : Hobbes, Shaftesbury, and Butler. Hume and Kant. NINETEENTH CENTURY ETHICS : Hegel; Bentham; MODERN IDEALISM.

III.—CONSTRUCTIVE THEORY.—Virtues and Duties. Duties and Rights. Civic Life : The Family ; Industry and Culture ; The State ; Morality and Religion.

BOOKS RECOMMENDED : MUIRHEAD'S *Elements of Ethics* ; MACKENZIE'S *Manual of Ethics* ; SIDGWICK'S *History of Ethics* ; DEWEY and TUFT'S *Ethics*.

**PREPARATORY READING :**

Students intending to take this Course should read MUIRHEAD'S *Elements of Ethics*.

**Course IV.*****METAPHYSICS. A.****First year of M.A. Course.*

1.—The History of Philosophy. (I) Greek Philosophy, with special reference to Plato and Aristotle. (II) Modern Philosophy, with special reference to Descartes, Spinoza, Leibniz.

Two meetings a week.

2.—Tutorial Class, one meeting a week.

Times to be arranged with students.

FEE : £2 12s. 6d.

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**Course V.*****METAPHYSICS. B.****Second year of M.A. Course.*

1.—Modern Philosophy, Kant and after. Two meetings a week.

2.—Tutorial Class once a week.

Times to be arranged.

FEE : £2 12s. 6d.

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***REQUIREMENTS FOR DEGREES.******B.A. Degree :***

1. For candidates taking Philosophy as a subsidiary subject, having already taken Logic at the Intermediate : either Course II or Course III. For candidates who have not taken Logic : either Course I, along with Joseph's *Introduction to Logic*, or Course II, or Course III.

2. For candidates taking Philosophy as a principal subject : Courses II and III in successive years.

A second Philosophical subject may be taken along with any other Philosophical subject as a second subsidiary subject.

*B.Sc. Degree :*

For candidates taking Psychology as a subsidiary subject : Course II, with Myers's Text Book of *Experimental Psychology*.

For Candidates taking Logic, the same additional reading as for B.A. Degree.

*M.A. Degree :*A.—*SUBJECT OF EXAMINATION.*

1. Candidates taking Philosophy alone for the M.A. Degree will be examined in :

A. (1) PSYCHOLOGY : Ward's Article on Psychology (Encycl. Brit.) ; Stout's Analytic Psychology ; Mitchell's Structure and Growth of Mind ; James's Text-book of Psychology ; Höffding's Psychology.

(2) LOGIC AND METAPHYSICS : Bosanquet's Logic ; Bradley's Appearance and Reality ; Caird's Hegel and Philosophy of Kant ; H. W. B. Joseph's Introduction to Logic ; Bosanquet's Principle of Individuality and Value, and Value and Destiny of the Individual ; Taylor's Elements of Metaphysics.

(3) MORAL AND POLITICAL PHILOSOPHY : Plato's Republic ; Aristotle's Ethics ; Kant's Theory of Morals (Abbott) ; Green's Prolegomena to Ethics ; Hegel's Philosophy of Law (Dyde's Tr.) ; Bosanquet's Philosophical Theory of the State.

(4) The General History of Philosophy,\* together with portions of important writers to be read under the direction of the Professor.

B. An essay on a subject chosen in consultation with the Professor of Philosophy.

2. Candidates taking Philosophy together with another subject for the M.A. Degree will be examined in :

(1) PSYCHOLOGY : Ward's Article on Psychology (Encycl. Brit.) ; Stout's Analytic Psychology ; Mitchell's Structure and Growth of Mind.

(2) LOGIC AND METAPHYSICS : Bosanquet's Logic and Principle of Individuality and Value ; A. E. Taylor's Elements of Metaphysics ; Bradley's Appearance and Reality.

- (3) MORAL PHILOSOPHY: Plato's Republic; Aristotle's Ethics; Kant's Theory of Morals (Abbott); Green's Prolegomena to Ethics; Bosanquet's Philosophical Theory of the State.
  - (4) The General History of Philosophy\*, with portions of important writers to be read under the direction of the Professor.
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\*Windelband's History of Ancient Philosophy, Höffding's History of Modern Philosophy recommended.

#### B.—ATTENDANCE ON LECTURES AND CLASSES.

Candidates taking the M.A. Degree in one year must attend both of the Courses IV and V, with the discussion classes connected with them.

Candidates taking the M.A. Degree in two years must take at least one of them in the first year, the other in the second year, with the discussion classes.

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## HISTORY.

*Professor* : CHARLES RAYMOND BEAZLEY, M.A. ; D.Litt.  
 (Oxon.), F.R.G.S., M.R.A.S., late Fellow of Merton  
 College, Oxford.

*Lecturer* : ROSE SIDGWICK, M.A.

*Assistant Lecturer in Ancient History* :

M. L. W. LAISTNER, B.A. (Cantab.).

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### Course I.

#### GENERAL EUROPEAN HISTORY.

A.D. 323—1900.

PROFESSOR BEAZLEY AND MISS SIDGWICK.

Tuesday, Wednesday, Friday, at 10.30.

FEE : £3 13s. 6d.

These lectures will deal with the general course of European History from the Conversion of the Roman Empire to the present day.

Leading movements and tendencies of Mediæval History. The Dark Ages and the Mediæval Renaissance. The First Christian Empire, from Constantine ; its decline and fall in the West, its survival in the East. The Barbarian invasions. The new nations ; their conversion. Islam and its conquests. Christendom saved by the Byzantine Empire and the Franks. Rise of the Papal power. The new Holy Roman Empire of the West. Formation of the Modern Nations. Influence of the Scandinavians, especially in France, Italy, Russia, Britain. Revival of the Western Empire on basis of a German kingdom. Zenith of Papal power ; struggle of the Papacy with the Empire. Progress of civilization from the rise of Islam to the Crusades.

The Crusades and their results. Mediæval Christian thought. Muhammadan influence. Power of religious

conceptions. Spirit of enquiry. Mediæval trade ; town growth. The Commercial Republics : Venice, Genoa, Flemish cities, Hanseatic League, etc. Development of political liberty. The Mongol-Tartar Empire and the exploration of Asia. The age of overland intercourse. Ruin of the Holy Empire and of the German Kingdom. Growth of the French Monarchy. Destruction of the Angevin Empire in France. The Spanish kingdoms. The Latin Empire of Constantinople. Expansion off the German race. Beginnings of the new European Science and Literature. Mediæval civilization at its height.

The new spirit of nationality and its victory over the Papacy. Decline of Papal influence. Protestant movements of the later Mediæval time. The Hundred Years' War of France and England. Fresh forces at the end of the Middle Ages : the new France, England, Russia, Poland, Spain, and Portugal. The Slavonic Revival of the 15th century. Rise of the Ottoman Turks. Oceanic development of the Western nations ; the great maritime discoveries. The new Colonial Empires. The new European arts. The Classical Renaissance. The civilization of Christendom at the end of the Middle Ages.

Leading movements and tendencies of Modern History. Protestantism and the Classical Renaissance. The Reformation and Counter-Reformation. The Religious struggles ; losses and gains. The Turkish Power. Russia, Poland, the Scandinavian States. The new Sweden. The ascendency of Spain. France, England, and Germany. The Colonial Field. The Dutch Republic. Progress of civilization in the sixteenth century.

The Thirty Years' War. French and Swedish ascendancy. The Peace of Westphalia. The Civil War in England and the Puritan Revolution. The Age of Louis XIV. Ottoman decline. Decay of religious controversy ; end of the religious wars. The new knowledge of nature. Progress of civilization in the seventeenth century.

War of the Spanish Succession. The settlement of 1713-14. Alliance of France and Spain. Rise of Russia and Prussia. Decline of Sweden, Poland, Holland. European Colonies. Struggle of Austria and Prussia. Expansion of England. Expansion of Russia, Prussia, and Austria. Ruin of Poland. American Independence. Civilization in the eighteenth century.

The French Revolution and Napoleon. Permanent results of the Age of Revolution. New Inventions. Greek independence. Revolutions of 1830 and 1848. The Second French Empire. The Crimean War. The Union of Italy. The Union of Germany and the new German Empire. Reconstruction in Austria, France, Russia, etc. Liberation of the Balkan States. The United States of America. Movements of European emigration (America, Australia, Africa, Asia). The Partition of Asia and Africa. Domination of the world by the European peoples. Civilization in the nineteenth century.

BOOKS RECOMMENDED (the more necessary starred) :

- \*1. H. W. C. DAVIS, *Mediæval Europe* (Williams and Norgate).
- \*2. E. A. FREEMAN, *General Sketch of European History* (London, Macmillan, 1891). [pp. 95-end.]
- 3. CARL PLOETZ, *Epitome of History* (Engl. trans., London, Blackie, 1884). [pp. 159-end.]
- \*4. CH. BÉMONT and G. MONOD, *Histoire de l'Europe au Moyen Age* (Paris, Alcan, 1910; Engl. trans., *Mediæval Europe*, tr. by MARY SLOAN, under supervision of G. B. ADAMS (New York and London, 1902)).
- \*5. E. SANDERSON, *Outlines of the World's History*, Part IV (Modern).
- \*6. RAMSAY MUIR, *Historical Atlas* (London, Philip, 1910).

For further study, the following are also recommended :—

- \*7. O. J. THATCHER and E. H. MCNEAL, *Source Book of Mediæval History* (New York, Scribner, 1905). [especially certain sections from the following pages :—14-167; 176-203; 207-259; 263-5; 267-270; 279-80; 290-3 (chaps. iv-viii); 306-341; 358-387; 432-446; 511-552; 572-612.]

- \*8. JAMES BRYCE, *Holy Roman Empire* (London, Macmillan, 1904).
- \*9. *The Student's Gibbon*, new edition, 2 vols., ed. A. H. J. Greenidge and J. C. G. Anderson (London, Murray, 1909).
- 10. R. W. CHURCH, *Beginnings of the Middle Ages* (London, Longmans, 1910).
- 11. R. LODGE, *The Close of the Middle Ages* (London, Rivington).

For more advanced study of the Middle Ages, students are specially recommended also to consult J. B. BURY's edition of Gibbon's *Decline and Fall of the Roman Empire*, chaps. 45, 48-9, 51-2, 55, 61, 64, 66, 68-70.

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### Course II.

#### *BRITISH INSTITUTIONS.*

PROFESSOR BEAZLEY AND MISS SIDGWICK.

Monday, 4.30 ; Tuesday, 12.30 ; Thursday, 12.30.

FEE : £3 13s. 6d.

Central and Local Government to-day ; the Crown, the Cabinet, the Privy Council, the Courts, the Government Departments, the House of Lords, the House of Commons, Church and State, etc. ; Local Administration, Parish and County Councils, etc. ; the Constitutional History of England from Anglo-Saxon times to the present day.

#### BOOKS RECOMMENDED (the more important starred) :

- \*1. E. F. HENDERSON, *Historical Documents of the Middle Ages* (London, Bell, 1892). [Book I, *England*, pp. 1-20 ; 135-168.]
- \*2. H. ST. C. FIELDEN and W. G. ETHERIDGE, *Short Constitutional History of England*, 1894 (3rd edition). (Oxford, Blackwell ; London, Simpkin, Marshall). [All, except Appendix II.]

- \*3. B.P. STUBBS, *Select Charters, Part I. Sketch of English Constitutional History to Edward I* [pp. 1-51, edition of 1884, Oxford, Clarendon Press.]
  - \*4. G. W. PROTHERO, *Statutes and Constitutional Documents 1559-1625* (Oxford, Clarendon Press); [1894, 1st edition; pp. xvii-xxxviii; lxi-cxxv; 1-20; 174-190; 399-412, i.e., parts of Introduction; Acts of Supremacy and Uniformity; Extracts from Political Writers: (a) Elizabeth, (b) James I.]
  - 5. S. R. GARDINER, *Constitutional Documents of the Puritan Revolution* (Oxford, Clarendon Press), [1889; 1st edition; pp. xiii-lxvi; 37-39; 85-87; 282-297; i.e., Introduction; Petition of Right; Ship Money Writ; Grand Remonstrance.]
  - 6. H. D. TRAILL, *Central Government* (London, Macmillan, 1892).
  - 7. PERCY ASHLEY, *English Local Government* (London, 1905).
  - \*8. W. ANSON, *Law and Custom of the Constitution* (Oxford, Clarendon Press). [Vol. I—3rd edition, 1897—chaps. ii-ix; Vol. II—2nd edition, 1896—chap. i, pp. 32-56; chaps. ii, iii, vii, x.]
  - 9. LAWRENCE LOWELL, *Government of England*.
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### Course III.

#### SPECIAL PERIODS.

PROFESSOR BEAZLEY AND MISS SIDGWICK.

FEE: £3 13s. 6d.

A.—THE SIXTEENTH CENTURY AND THE AGE OF ELIZABETH,  
1517-1603.

Monday, 12.30; Friday, 10.30.

The History of England and of the chief European states which influenced English History during the latter half of the sixteenth century.

## BOOKS RECOMMENDED (the more important starred) :

- \*1 and \*1a. BISHOP CREIGHTON, *Age of Elizabeth* (London, Longmans, 1881); also the *Life of Queen Elizabeth*, by the same author.
- \*2. L. VON RANKE, *History of England, principally in the XVII Century* (Oxford, 1875). [Vol. I.]
- 3. *Social England*, Illustrated Edition. [Vol. III.]
- \*4. G. W. PROTHERO, *Statutes and Constitutional Documents, 1559-1625*. (Edition of 1894, as above.) [Tudor Sections of Introduction]; 1-21 (Acts of Supremacy, Uniformity, etc.); 36-39 (Colleges and Schools, etc., Assurance of Queen's Power); 41-45 (Poor Relief); 57-63 (Treason, Papal Bulls); 67-74 (Vagabonds and Poor, Workhouses); 74-86 (Surety of Queen's Person, Against Jesuits, etc.); 93-105 (Husbandry, Poor Relief, Vagabonds, Workhouses); 120-122 (Wentworth's Speech on Parliamentary Privilege, Feb. 8th, 1576); 168-172 (Liberty of Press, etc.); 174-183 (Extracts from Political Writers); 183-199 (First Group of 'Ecclesiastical Documents'); 204-206 (Puritan 'Prophesying,' etc.); 213-214 (Burleigh and Whitgift); 245-249 (Extracts from Ecclesiastical Writers).

For further study the following are also recommended :

- 5. A. H. JOHNSON, *Europe in the Sixteenth Century* (London, Rivington 1901).
- 6. L. VON RANKE, *The Reformation in Germany*.

## B.—THE AGE OF BISMARCK, 1850-1890.

Tuesday, 3.30; Thursday, 3.30.

The History of Continental Europe, and especially of Germany, from the beginning of Bismarck's political activity to his retirement.

## BOOKS RECOMMENDED (the more important starred) :

- \*1. BISMARCK, *Gedanken und Erinnerungen*. [E. trans. *Reflections and Reminiscences*. (London, 1898), 2 vols., esp. Vol. I, pp. 1-109, 119-126, 131-140, 152-164, 209-217, 230-252, 258-408; Vol. II, all.]
- \*2. W. A. PHILLIPS, *Modern Europe, 1815-1899* (London, 1901). [pp. 390-485; also less minutely, pp. 361-389; 486-533.]
- \*3. C. A. FYFFE, *History of Modern Europe* (London, Cassell, 1892). [Vol. III, pp. 148-524.]
- 4. SEIGNOBOS, *Histoire politique de l'Europe contemporaine. A Political History of Contemporary Europe*. [Engl. trans., London, Heinemann, 1901, esp. chaps. iii, iv, vi, vii, xi, xiv-xvii, xix-xxiv, xxvii, xxviii.]
- 5. T. H. ROSE, *Development of the European Nations, 1870-1900* (London, Constable, 1905).
- 6. THE ANNUAL REGISTER, 1850-1890.
- \*7. J. W. HEADLAM, *Bismarck and the Foundation of the German Empire*. (Putnams, New York and London, 1903).
- 8. COUNTESS CESARESCO, *Cavour* (Macmillan, London, 1904).
- 9. KING OF RUMANIA, *Memoirs [Aus dem Leben König Karls von Rumänien.]* Introd. by S. Whitman, Harper, 1899.

*Special Course for M.A. Degree* (see page 418).

### THE FIFTEENTH CENTURY AND THE AGE OF MARITIME DISCOVERY, 1415-1522

Monday and Thursday, 12.30.

In all these Special Periods attention will be given to the social, commercial, literary, scientific, and colonial sides of European history, as well as to the political.

## Course IV.

## OUTLINES OF ANCIENT HISTORY.

Monday, Tuesday, and Friday, at 1.30.

FEE: £3 13s. 6d.

The prehistoric age of Greece. The migrations and expansion of Greece. The rise of the republics. The Persian Wars. Athenian supremacy. The Peloponnesian War and downfall of Athens. The supremacy of Sparta and Thebes. The rise of Macedon. Greek expansion under Alexander. The Hellenistic kingdoms.

The rise of the Roman Republic. The early Punic Wars. The Eastern conquests of Rome. The reaction of Greek culture upon the Romans. The breakdown of the Roman Republic. The Civil Wars and institution of the Empire.

## BOOKS RECOMMENDED :

- C. A. FYFFE, *Greece* (Macmillan's Primers, London, 1875).
  - BP. CREIGHTON, *Rome* (same series).
  - \*J. B. BURY, *History of Greece* (London, 1900).
  - \*J. L. MYRES, *History of Rome* (London, Rivington, 1902).
  - EVELYN ABBOTT, *Skeleton Outline of Greek History* (London, Rivington, 1886).
  - P. E. MATHESON, *Skeleton Outline of Roman History* (London, Rivington, 1890).
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## REQUIREMENTS FOR DEGREES.

## Intermediate Arts Examination :

Course I. (General European).

## B.A. Degree :

(a) *If History is taken as a Principal Subject,\**

Course II (British Institutions), followed by—

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\* Course I (General European) having already been taken for Intermediate (see note page 418).

- (i) A Special Period (Course III),  
*or*

- (ii) Ancient History (Course IV).

*Note.—Those who intend to take History as a Principal Subject should take General European History in their Intermediate Examination. If not so taken, this course must be offered in a subsequent year.*

- (b) *If History is taken as a Subsidiary Subject,* Course II, or III or IV.

*M.A. Degree :*

A course approved by the Professor of History, and studied under his supervision. This course will include (i) a thesis,\* (ii) a Special Period studied with special reference to original authorities. The Special Period for 1914-15 will be the

FIFTEENTH CENTURY and THE AGE OF DISCOVERY,  
 1415-1522.

BOOKS RECOMMENDED for the History of Exploration  
 in this period :

AZURARA : *Chronicle of Guinea*, tr. Beazley and Prestage,  
 Hakluyt Soc., 1896-1899.

GOMES : *De Inventione Guineæ, etc.*

*Alguns Documentos*, Lisbon, 1892 (Latin charters from)

CADAMOSTO : In Old French, trans., ed. Ch. Schefer, Paris,  
 Leroux, 1895.

*Journal of Columbus* (Hakluyt Soc.).

*First Voyage of Vasco da Gama* (Hak. Soc.).

*Magellan's Voyage Round the World* (Hak. Soc.).

MAJOR, *Henry the Navigator*.

BEAZLEY, Papers in *American Historical Review* and *London Geographical Journal*.

*HONOUR SCHOOL OF HISTORY.*

For Regulations relating to the Honour School of History, see page 199.

\* The Thesis should not usually exceed 40,000 words, or fall below 20,000.

## TIME TABLE.

HISTORY.	Mon.	Tues.	Wed.	Thurs.	Fri.
Course I .. .. ..	10.30	10.30	..	10.30	
Course II .. .. ..	4.30	12.30	..	12.30	..
Course IIIA. .. .. ..	12.30	..	..	..	10.30
Course IIIB. .. .. ..	..	3.30	..	3.30	..
Course IV .. .. ..	1.30	1.30	..	..	1.30
M.A. Course .. .. ..	12.30	..	..	12.30	..
Also for Honour School of History—					
Economic History .. .. ..	..	..	..	11.30*	..
Political Theory .. .. ..	..		To be arranged.†		

\* Winter Term

† Spring Term.

The Professor will be in his room on certain days which will be arranged each term, from 3 to 5 o'clock, to meet any students who may wish to see him about their work or historical study in general.

## THEORY, HISTORY AND PRACTICE OF EDUCATION.

*Organising Professor* : ALFRED HUGHES, M.A. ;  
M.A. (Oxon.), B.A. (Manch.).

*Assistant* : MURIEL O. DAVIS.

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### Course I A.

#### THE CONDUCT OF THE MIND.

*Professor* : JOHN H. MUIRHEAD, M.A. (Glas. and Oxon.) ; LL.D.

*Lecturer* : JOHN W. HARVEY, M.A. (Oxon.).

### SYLLABUS.

Mondays and Thursdays, at 2.30.

FEE : £3 3s. od.

- I. Connection of Body and Mind. Fatigue. Mental development
- II. The Senses and their training. Cultivation of interest and attention. Memory: Means of strengthening it. The growth of imagination and reasoning.
- III. Place of pain and pleasure in life and education. Rewards and punishments. Control of the feelings. The growth of sentiments as elements in character.
- IV Habits and their formation. Imitation and suggestion. Purposeful action.
- V. The foundations of morality and religion. The use of religious literature in moral training.

TEXT BOOKS RECOMMENDED.—James's *Talks to Teachers*; Loveday and Green's *Introduction to Psychology*; MacCunn's *Making of Character*; Muirhead's *Elements of Ethics*.

**Course I B.*****THEORY AND PRACTICE OF TEACHING.***

*Lecturer* : RICHARD A. JONES, M.A. (Lond.), B.A. (Cantab.).

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*Lectures* : Thursdays and Fridays at 4-30.

**FEE** : £3 3s. od.

- I. Organisation and curricula of various types of schools  
Conditions affecting physical condition of children. The Staff and its distribution. Classification and promotion. Examination. School records.
- II. Curricula and their bases. Variations of curricula to meet special conditions. Transitions from one department to another in the same school. General method. Teaching devices. Teacher and scholar and relation between the work done by one and the other Scholar's self education. Special method of dealing with the teaching of language, mathematics, manual occupations, including drawing, Nature study, geography, history, singing, hygiene, and physical training. Time Tables. Schemes of work. Notes of lessons.
- III. Discipline and self-discipline. School as offering opportunities for training in responsibility and in character. School as community. School in its relation to the home and the community.  
The hygiene of school life. Direct and indirect means of cultivating good physical habits in school. Fatigue.

**TEXT BOOKS RECOMMENDED :**

WELTON : *Principles of Teaching*.

BAGLEY : *The Educative Process*.

FINDLAY : *Principles of Class Teaching*.

WELTON AND BLANDFORD : *Moral Training*.

The Course also includes Teaching under supervision for a period of six weeks, the specific observation of children in school, attendance at demonstration lessons, school visits, and educational conferences.

Each student taking this course will also be required to attend classes and gain a certificate of proficiency in Music, Elocution, Drawing, Physical Drill, Needle Work, or Manual Work, Elementary Science.

## Course II A.

*HISTORY OF EDUCATIONAL IDEAS.*

*Lecturers* : RICHARD A. JONES, M.A. (Lond.), B.A. (Cantab.)  
 MARY S. LILLEY, B.A. (Lond.), M.A.  
 (Columb.)

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*Lectures* : Mondays and Fridays at 4.30.

*FEE* : £3 13s. 6d.

The course consists mainly of the following topics :—

- I. The Ideas of Great Educators. These are for the most part to be gained from original sources.
- II. Development of Educational Institutions.
- III. Educational Progress and Reform during Nineteenth Century.

## BOOKS FOR READING :

BOSANQUET : *Education of the Young* (Camb. Univ. Press).

BURNET : *Aristotle on Education* (Camb. Univ. Press).

QUINTILIAN : Prescribed passages.

VERGERIUS : *De Ingenius Monibus* (In "Vittorino de Feltre and other humanist educators," Camb. Univ. Press).

ERASMUS concerning Education. (Woodward, Camb. Univ. Press).

ASCHAM : *The Schoolmaster* (Cassell's National Lib.).

RABELAIS : *The Teacher's Rabelais*, Hodgson (Blackie and Sons).

MILTON : *Tractate on Education* (Camb. Univ. Press).

LOCKE : *Thoughts on Education* (Camb. Univ. Press).

ROUSSEAU : *Emile Payne* (Appleton and Cō.). (Also published in Everyman Series.)

PESTALOZZI : *Leonard and Gertrude*, Channing (Heath and Co.).

FROEBEL : *Educational Ideas of Froebel*, Jessie White (Clive and Co.).

SPENCER : *Education* (Everyman, 1911).

### Course II B.

Candidates will be required to select, in consultation with the lecturer, a topic of educational interest, and to prepare thereon an extended essay or short thesis, exhibiting the result of personal investigation and containing a sufficient bibliography.

### REQUIREMENTS FOR DEGREES.

*B.A. Degree.*—Students who offer Education as a *principal* subject at the B.A. Degree Examination are required to take Course I (A and B) and Course II (A and B) in successive years.

Education cannot be offered as a subsidiary subject for B.A.

*B.Sc. Degree.*—Students in the Training College who offer Education as a *subsidiary* subject at the B.Sc. Degree Examination are required to take Course I (A and B) and Course II (A and B) in successive years.

Education cannot be offered as a principal subject for B.Sc.

### TIME TABLE.

COURSE.	Mon.	Tues.	Wed.	Thurs	Fri.
Course IA. . . . .	2.30	..	..	2.30	..
Course IB . . . . .	..	..	..	4.30	4.30
Course IIA . . . . .	4.30				4.30

\* Tutorial Classes by arrangement.

## MUSIC.

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*Richard Peyton Professor : GRANVILLE BANTOCK, M.A*

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### The Richard Peyton Chair of Music.

This Chair was endowed in the year 1905, by the late Richard Peyton, Esq., a sum of £10,000 being provided and specifically invested. The annual income represents a sum of about £340. The first occupant of the Chair was Sir Edward Elgar, Mus.Doc., LL.D., who retired in 1908.

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The following Courses in Music are intended primarily for matriculated students who are preparing for the Degree of B.Mus., but they will also be open to others on payment of the usual fees.

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### First Year's Course for the Degree of B.Mus.

#### I.

#### MUSIC. COURSE I.

Two hours weekly.

FEE : For the whole course, £2 12s. 6d. ; for Course IA, or Course IB, £1 11s. 6d.

#### A.

(1) *A survey of the early development of Counterpoint and of Harmony.*

Books required :

Cherubini : Counterpoint and Fugue (Novello).

Prout : Harmony, its Theory and Practice (Augener).

Prout : Counterpoint, Strict and Free (Augener).

(2) *The Rise of English Church Music*, illustrated in Boyce's Collection of Cathedral Music, and especially by the following examples :—

Tye : "I will exalt thee."

Tallis : "I call and cry."

Farrant : "Call to remembrance."

Byrd : { "Sing joyfully unto God."

"Bow thine ear."

Gibbons : "Hosanna to the Son of David."

Bull : "O Lord, my God."

Blow : "My God, my God, look upon me."

Purcell : "Hear my prayer, O Lord."

(3) *Folk Songs and National Songs* :—

Berggreen : Folke-Sange og Melodier.

Reimann : Internationales Volksliederbuch (Simrock).

B.

(1) *Chamber Music*, exemplified especially by the following works :—

Haydn : Quartet for Strings, in D, Op. 76, No. 5 (Donajowski).

Mozart : Quartet for Strings, in E flat (K. 428), (Donajowski).

Beethoven : Quartet for Strings, in A, Op. 18, No. 5 (Donajowski).

Schubert : Quartet for Strings, in E, Op. 125, No. 2 (Donajowski).

Schumann : Quartet for Strings, in A, Op. 41, No. 3 (Donajowski).

Brahms : Quartet for Strings, in A minor, Op. 51, No. 2 (Lengnick).

(2A) *The Early English Madrigal*, as represented in "The Triumphs of Oriana" (1601), with special reference to the following :—

Byrd : "While the bright sun."

Wilbye : "Sweet honey-sucking bees."

Benet : "Come shepherds, follow me."

Bateson : "Oriana's Farewell."

WHEELES : "As Vesta was from Latmos' Hill descending."

Morley : "Hard by a crystal fountain."

Gibbons : "The Silver Swan."

(2B) *The Fitz-William Virginal Book*, with particular reference to the works of Byrd, Bull, and Giles Farnaby.

(3) *The Development of the Song*.

Schubert : Songs (Breitkopf and Härtel).

Loewe : Selected Ballads and Songs (B. & H.).

Schumann : Myrthen, Op. 25 (Augener).

Brahms : Ausgewählte Lieder (Simrock).

Wolf : Mörike Lieder (Peters).

Strauss : Lieder Albums (B. & H.).

Debussy : { Cinq Poèmes (Baudelaire).  
                  Fêtes Galantes  
                  Chansons de Bilitis } (Durand).

The following books are recommended for general reading :—

- Wallaschek : Primitive Music (Longmans).  
 Engel : The Study of National Music (Longmans).  
 Walker : A History of Music in England (Oxford).  
 Parry : Studies of Great Composers (Routledge).

## II.

### *ACOUSTICS.*

Fridays, at 12.30, during the Spring Term.

A Course of Ten Lectures to be delivered by Dr. Shakespear, in the Physics Department at Edgbaston.

FEE : 10s. 6d.

## III.

### *AN ARTS COURSE.*

(See note at end of Syllabus.)

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### Second Year's Course for the Degree of B.Mus.

## I.

### *MUSIC. COURSE II.*

Two hours weekly.

FEE : For the whole course, £2 12s. 6d. ; for Course IIA or Course IIB, £1 11s. 6d.

## A.

- (1) *The Modern development of Harmony and Counterpoint.*
- (2) *Musical Forms, and the Analysis of Fugue.*
- (3) *Orchestration.*

Books required :

- Prout : Double Counterpoint and Canon (Augener).  
 " Musical Form (Augener).  
 " Applied Forms (Augener).  
 " Fugue (Augener).  
 " Fugal Analysis (Augener).  
 Bach : The Art of Fugue (Peters).  
 " The Musical Offering (Peters).  
 Berlioz : Instrumentation (Novello).

## B.

(1) *The Development of Pianoforte Music*, with particular reference to the following works :—

- Bach : Suites Françaises (B. & H.)  
 Mozart : Fantasia and Sonata in C minor (B. & H.)  
 Beethoven : Three Sonatas, Op. 31 (B. & H.)  
 Chopin : Preludes (B. & H.)  
 Schumann : Carnaval, Op. 9 (B. & H.)  
 Liszt : Hungarian Rhapsodies (B. & H.)  
 Grieg : Lyric Pieces (Peters).

(2) *The Organ Works of Bach*.

- |                        |           |
|------------------------|-----------|
| Preludes and Fugues    | (B. & H.) |
| Fantasias and Fugues   | "         |
| Toccatas and Fugues    | "         |
| Passacaglia in C minor | "         |
| Sonatas                | "         |
| Choral Variations      | "         |
| Choral Preludes        | "         |

(3) *Evolution of the Orchestra*, illustrated by the development of the Overture, Tone-Poem, and Suite.

- Beethoven : Leonora, No. 3, Op. 72 b. (Donajowski).  
 Weber : Der Freischütz  
 Mendelssohn : A Midsummer Night's Dream       "  
 Berlioz : Carnaval Romain, Op. 9  
 Liszt : Les Préludes (B. & H.)  
 Wagner : Tannhäuser (Donajowski).  
 Rimsky-Korsakow : Scheherazade, Op. 35 (Belaieff).  
 Strauss : Till Eulenspiegel, Op. 28 (B. & H.).

The following books are recommended for general reading :—

- Parry : Johann Sebastian Bach (Putnam).  
 Parry : The Art of Music (Kegan, Paul Trench).  
 Liszt : Life of Chopin (Reeves).

## II.

*AN ARTS COURSE.*

(See note at end of syllabus.)

## Third Year's (Final) Course for the Degree of B.Mus.

## I.

## MUSIC. COURSE III.

Two hours weekly.

FEE: For the whole course, £2 12s. 6d. ; for Course A and B<sub>1</sub>, £1 11s. 6d. ; for Course B<sub>2</sub> and B<sub>3</sub>, £1 11s. 6d.

## A.

*Analysis* of the following works :—

Bach : Mass in B minor (B. & H.)

Wagner : "Parsifal" (B. & H.)

Strauss : "Ein Heldenleben." (Leuckart).

## B.

(1) *Choral Music* as exemplified in the work of the following composers, with particular reference to the undermentioned works :—

Palestrina : Missa—"Dies sanctificatus" (B. & H.)

Handel : "Israel in Egypt" (Novello).

Bach : Motet—"Sing ye to the Lord" (B. & H.)

Cornelius : "O Death, thou art the tranquil Night" (Novello).

Brahms : "Schicksalslied" (Simrock).

Elgar : "Go, Song of Mine" (Novello).

(2) *The Opera.*

Mozart : "Die Zauberflöte" (B. & H.)

Gluck : "Iphigenia in Aulis" (Novello).

Meyerbeer : "The Huguenots" (Boosey).

Rossini : "The Barber of Seville" (Novello).

Wagner : "Lohengrin" (B. & H.)

Strauss : "Salomé" (Fürstner).

Debussy : "Pélleas et Mélisande" (Durand).

(3) *The Symphony.*

- Haydn : in D (London), Op. 98, No. 1 (B. & H.)  
 Mozart : in C (Jupiter), K. 551  
 Beethoven : in E flat (Eroica), Op. 55  
 Schubert : in C, No. 7  
 Berlioz : *Fantastic*, Op. 14  
 Tchaikowsky : in B minor, *Pathetic*, Op. 74 (Donajowski).  
 Brahms : in C minor, Op. 68 (Simrock).

The following books are recommended for general reading :

- Wagner : *On Conducting*, Trans. E. Dannreuther (Reeves).  
 Newman : *Gluck and the Opera* (Dobell).  
 Weingartner : *On the Performance of Beethoven's Symphonies*, Trans. J. Crosland (B. & H.).  
 Parry : *Style in Musical Art* (Macmillan).

## II.

*PRINCIPLES OF METRE AND PROSODY.*

A course of Ten Lectures to be delivered by Professor Sonnenschein during the Spring Term, on alternate Thursdays, at 5.30 p.m.

**FEE** : 10s. 6d.

*REQUIREMENTS FOR THE DEGREE  
OF B.MUS.*

Candidates for the Degree of B.Mus. must have passed the Matriculation Examination or one of the examinations accepted in lieu of it. They must also have passed an examination in the Rudiments of Music, viz.: that of the Midland Institute School of Music, that of the Associated Board, or that of the Royal Society of Arts (higher certificate).

**FIRST MUSIC EXAMINATION :**

- i. Music, Course I, A and B.
- ii. Acoustics.
- iii. Harmony and Counterpoint up to four parts. The classes (two hours weekly) are held at the Midland Institute School of Music.
- iv. Test of powers of playing upon some musical instrument, *e.g.*, Organ, Pianoforte, or some orchestral string or wind instrument. The tuition (one hour weekly) is given at the Midland Institute School of Music.
- v. Another degree course in the Faculty of Arts. (See note at end of Syllabus.)

**SECOND MUSIC EXAMINATION :**

- i. Music, Course II, A and B.
- ii. Harmony and Counterpoint up to eight parts, and the analysis of Fugue. The classes (two hours weekly) are held at the Midland Institute School of Music.
- iii. Another course in the Faculty of Arts. See note at end of Syllabus.

**THIRD MUSIC EXAMINATION :**

- i. Music, Course III, A and B.
- ii. Principles of Metre and Prosody.
- iii. The composition of an unaccompanied choral work in not less than four parts, occupying not less than five minutes in performance ; and in addition, either—
  - (a) A symphonic work for full orchestra, with or without a solo instrument, occupying not less than ten minutes in performance ; or

- (b) A vocal and instrumental work including solos and choruses, with orchestral accompaniment, occupying not less than fifteen minutes in performance; or
- (c) A piece of Chamber Music for at least three instruments, occupying not less than twenty minutes in performance.

*Note.*—Of the two additional courses in the Faculty of Arts, one must be English Literature (Course II or Course III), and one other must be a course in a Modern Foreign Language, preferably French or German.

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#### REGULATIONS FOR THE DEGREE OF MASTER OF MUSIC.

Bachelors of Music become eligible for the Degree of Master of Music after an interval of three years from the date of graduation. Candidates are required to submit either—

- (1) Original musical works (published or in manuscript) composed within this period.  
*Or,*
- (2) A dissertation embodying critical or historical research on some musical subject.

The candidate may be examined orally by the Examiners on the works submitted or the subject of the dissertation.

One copy of the musical works, or two type-written copies of the dissertation, must be sent to the Registrar on or before May 3rd, 1915.

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## TIME TABLE.

COURSE	Mon.	Tues.	Wed.	Thur	Fri.
Course I—					
A .. .. ..	..	..	11.0	..	.
B .. .. ..	..	..	..	..	11.0
Acoustics (Spring Term only)	..	..	..	..	12.30
Course II—					
A .. .. ..	..	..	12.0	..	..
B .. .. ..	..	..	..	..	12.0
Course III—					
A .. .. ..	3.0	..	2.0	..	..
B .. .. ..	..	..	..	..	2.0
Metre and Prosody (Spring Term)	.. .. ..	..	..	5.30	..

## FACULTY OF COMMERCE.

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The purpose of the Faculty of Commerce is to furnish a systematic training, extending over a period of three years,\* for students who look forward to business careers. In planning the courses of instruction two objects have been kept in view—(1) the combination of liberal culture with utility ; and (2) a due regard for the different requirements of different branches of commercial life. Certain parts of the curriculum are believed to be serviceable for all classes of business men, and are therefore prescribed for all students in the Faculty. In other parts a large freedom of choice is allowed, in accordance with the prospects, interests and aptitudes of individual students.

Two main alternatives are presented :—(1) Students who expect to be engaged in the *commercial* conduct of *manufacturing* and similar businesses will naturally desire to combine with the specifically commercial courses, and with a certain amount of linguistic study, some attention to the scientific and technical subjects which most nearly touch the business in which they are interested. Under the arrangement set forth in detail below, they can devote, if they so choose, about one-third of their time to work in Applied Science ; (special attention is called to the paragraph on *Engineering Practice*, page 440). And a similar choice will often be expedient for those who are likely to be concerned in the commercial management of collieries and other mines, or of agricultural undertakings, as well as for those who propose to enter upon business life in Australia, Canada, or S. Africa. (2) Students, on the other hand, who expect to be ultimately engaged in the work of a *merchant*, in the narrower sense of the word,

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\* Two in the case of approved Graduates of other Universities. See page 442.

will usually prefer (after due provision has been made for the strictly commercial courses) to enlarge their knowledge of foreign languages, and to gain access, in this and other ways, to a wider range of economic, financial, and administrative studies. A like choice, with the necessary modifications in detail, may be appropriate for those who are likely to be occupied in railway or shipping management, in stockbroking or financial houses, in consular or municipal service, in the employment of Chambers of Commerce, as accountants, or as masters on the "modern sides" of schools. But in every case the choice among the several optional subjects will only be made after the student has had the opportunity of consultation with the Dean of the Faculty.

Students who have been matriculated in the University, and have acquitted themselves with credit in the requisite class work and examinations, will be admitted to the Degree of Bachelor of Commerce. Students may matriculate on passing the Matriculation Examination of the University, or on producing evidence that they have passed one of the examinations which the University accepts in lieu thereof. A schedule of the exempting examinations is given in the Regulations for Matriculation.

Every candidate presenting himself at the Matriculation Examination must pass in *five* subjects at one examination, viz. :—

- (1) English History and Literature.
- (2) Mathematics.
- (3) (4) and (5) Three subjects (of which one must be a language), chosen from the following list :—
  - (a) Latin.
  - (b) Greek.
  - (c) French.
  - (d) German.
  - (e) Italian.

- (f) Spanish.
- (g) Higher Mathematics.
- (h) Experimental Mechanics.
- (i) Chemistry.
- (j) Geography.
- (k) Botany.
- (l) Animal Biology.
- (m) Geometrical Drawing.

Any candidate who so desires may offer himself for examination in four subjects from the above list (*a—m*), although he will need to pass in three only.

The requirements in the several subjects will be found in the Regulations for Matriculation.

But although a large freedom is allowed in the choice of subjects to be offered at the Matriculation Examination, those who look forward to entering the office of a merchant are *strongly recommended* to make at any rate a beginning with the study of two modern foreign languages while they are at school. They will do well to make such a beginning, even though they should ultimately choose to offer one or both classical languages at the Matriculation Examination. If only one modern language can be studied at school, German is recommended : the other languages included in the syllabus of the Faculty of Commerce are French, Spanish, and Italian.

Similarly, those who anticipate the career of a manufacturer, especially in the direction of the engineering or allied trades, are urged to give special attention at school to Mathematics ; and to acquire an elementary knowledge, before coming to the University, of one at least of the two subjects, Chemistry and Physics.

It should be understood, however, that the best general preparation at school for the work of the Faculty of Commerce is a good all-round education. This should

always include some practice in simple narrative and argumentative composition in English.

It is unwise for boys who desire a higher commercial education to leave school before they can pass an examination qualifying for Matriculation. And even after passing such an examination, students may be too immature to benefit by a training which calls for the constant exercise of judgment. It may, in this case, be well for them to spend a preliminary year in a workshop or counting-house. The same plan may properly be recommended in some instances to students who look forward to entering businesses in which early practical experience is desirable. It is, however, *often possible to get valuable practical experience in the office or workshop during the vacations.*

All new students who propose to enter upon the curriculum leading to the degree of Bachelor of Commerce, are required to call upon the Dean of the Faculty at the University, on the morning of October 1st, 2nd, 3rd, or 5th, between 10 a.m. and 1 p.m., to inform him as to their previous training, and to consult him as to their choice of studies. Lectures will begin on Tuesday, October 6th. Students unavoidably prevented from meeting the Dean at those times are requested to communicate with him by letter on, or as soon as possible after, October 1st, to arrange an interview.

Students of the Second and Third Years are required to see the Dean on the morning of October 6th.

*Before any person will be permitted to register in the Office of the Secretary for any course under the Faculty of Commerce, he will be required to produce a card signed by the Dean, or by the teacher in charge of the particular course.*

The intention of this rule is to give every student an opportunity to obtain the advice of the teachers of the Faculty before committing himself by registration.

### Curriculum for the Degree of B.Com.

Candidates for this degree are required to have attended the following courses of study, and to have passed the University Examinations thereon at the end of each of the three years. There will be a *vivâ voce* examination in foreign languages in each year; and at the end of the third year in the commercial and legal studies of that year. Candidates may offer themselves for the whole or any part of the Examination in any year. Only matriculated students will be admitted to University Examinations (in which External Examiners co-operate with the University staff). The class examinations, to which non-matriculated students will be admitted, will be conducted by the University staff alone. The scope of the several courses will be learnt from the syllabuses which follow the curriculum; and (in the case of courses in Languages History, Mathematics, Science—Pure and Applied, and Philosophy) from those in the announcements of the Faculties of Arts and Science.

#### FIRST YEAR.

1. Commerce I.
2. Accounting I.
3. General Economics I.
4. The Commerce Seminar.
5. A Modern Language (German, Spanish, French, Italian, or—in the case of foreign students—English).
6. A Science applicable to Manufacture,  
*or*  
A second Modern Foreign Language.
7. An approved Course selected from any of the Departments under the charge of the Faculties of Science or Arts.

(Requirements 6 and 7 may be satisfied by the Courses set forth under *Engineering Practice*, 1st year, page 440.)

*SECOND YEAR.*

1. Commerce II.
2. Accounting II.
3. General Economics II or Methods of Statistics.
4. Economics of Transport or Public Finance.
5. Elementary Commercial Law.
6. The Commerce Seminar.
7. A Modern Foreign Language.
8. A Science applicable to Manufacture  
*or*  
A second Modern Foreign Language.
9. An approved Course selected from any of the Departments under the charge of the Faculties of Science or Arts.

(Requirements 8 and 9 may be satisfied by the Courses set forth under *Engineering Practice*, 2nd year, page 440.)

**Regulations as to First and Second Year Courses.**

*Commercial Courses Proper.*—For these see the syllabuses below.

General Economics II and Methods of Statistics will be given in alternate years; and the same is true of Economics of Transport and Public Finance. Candidates in their second year are required to take the courses given in that year.

*Languages.*—Every candidate for the Degree of B.Com. must attend, in accordance with the requirements in the above lists, three full courses in one modern Foreign Language, one in each of the years of the curriculum. The minimum requirement for the degree in the language selected is the passing of the Matriculation and Intermediate Arts Examination, as well as of the examination in Commercial Literature and Correspondence. The higher standard reached by those students who are also able to pass the language examination of the Second Year in Arts will be recorded on the degree diploma.

Besides this, every candidate for the degree will be allowed (under Requirement 6 in the first year, 8 in the second, and 9 in the third), to choose between a Course in Science appropriate to a business career, and a Course in a second Foreign Language. If he is especially interested in the language or literature of either of the two foreign countries he may, if he so choose, take a further advanced course under Requirement 7 in the first year, and 9 in the second.

*Pure and Applied Sciences.*—The intention of the choice here allowed is to enable a student, if he so desires, to give a considerable proportion of his time to the scientific study which is likely to be of service to him subsequently. A student who wishes to become a technical *expert* will enter the Faculty of Science : the opportunities afforded in the Faculty of Commerce are only such as are desirable for one who will be engaged mainly in the *commercial* management of a business. Such a student may, under Requirement 6 in the first year, and 8 in the second (and under Requirement 9 in the third year), take one of the courses rendered available by the time table in any scientific subject definitely associated with manufacture. This course must, as a rule, consist of at least two hours of lectures per week, or their equivalent in laboratory or workshop hours ; *two laboratory or workshop hours being reckoned for this purpose equivalent to one lecture hour.* He may, under Requirement 7 in the first and 9 in the second year, take an additional scientific course such as may be suitable in conjunction with the other in the judgment of the Dean ; this course also to consist of not less than two hours of lectures a week or their equivalent. If more lectures in the Faculty of Science are taken than seven a week in the first and second years, and four in the third year, an addition will be made to the composition fee.

Any course, however, under the Faculty of Science may be taken to satisfy Requirement 7 of the first and 8 of the second year, without any purpose of business

utility, and simply as an element in a general education, if the other requirements of the curriculum are at the same time satisfied.

*Engineering Practice.*—In conformity with the rules of the preceding paragraphs, the following choice of courses is recommended to commercial students who look forward to entering manufacturing businesses in which a general acquaintance is desirable with engineering practice :—

1st Year. *Physics I.*—Lectures and practical class, (Properties of Matter, Heat, Light, Sound, Magnetism, Electricity, Electro-Magnetism).

*Machine Drawing*—3 hours weekly (including introductory lectures).

2nd Year. *Engineering I.*—(Elementary Principles of Machine Design ; Tools and Machines in common use ; the Steam Engine, and the chief types of Boilers ; Gas and Oil Engines).

*Machine Drawing*—2 hours weekly.

*Workshop*—3 hours weekly.

3rd Year. *Power Station.*—(Training and practical experience in the use of Prime Movers generally)—2 hours weekly.

*Workshop*—3 hours weekly.

*Courses under the Faculty of Arts.*—Under Requirement 7 in the first, and 9 in the second year, there is complete freedom of choice among courses rendered available by the time table, subject only to the condition that the number of lectures a week must not, as a rule, be less than three. In suitable cases two shorter courses may be taken instead of a longer one.

But every student is asked to consult with the Dean before making his choice, and he is urged to make a

selection only after a careful consideration of his intellectual interests. Unless he has a valid reason for some other choice, he is *strongly recommended* to take in the first year the course on *General European History (Modern Times)*, and in the second year that on *British Institutions*; while in many cases a course in *English Literature* will also be very advisable.

*Courses in Art and in the Metal Crafts.*—Requirements 6 and 7 may be satisfied by taking, in the first year, courses on *Historic Ornament in the Metal Crafts*, and on *Drawing and Modelling*, at the Vittoria Street School, and *Metallurgy I* at Edgbaston; and, in the second year, Requirements 8 and 9 may be satisfied by a continuation of the before-mentioned courses at the Vittoria Street School, together with an approved selection from among the *Process* courses at the same school.

### THIRD YEAR.

1. Commerce III.
2. Accounting III.
3. Technique of Trade, including Banking and Exchange.
4. Public Finance or Economics of Transport.
5. Methods of Statistics or General Economics II.
6. Advanced Commercial Law.
7. The Commerce Seminar.
8. A Modern Foreign Language.
9. A Science applicable to Manufacture,  
*or*  
A second Modern Foreign Language.

(Requirement 9 may be satisfied by the Courses given under *Engineering Practice*, 3rd year, page 440 supra.)

**Regulations as to Third Year Courses.**

*Commercial Courses Proper.*—For these see the syllabuses below.

Public Finance and Economics of Transport will be given in alternate years; and similarly Methods of Statistics and General Economics II. Candidates in their third year are required to take the courses given in that year. For the requirements as to Advanced Commercial Law, see the syllabus below.

*Languages.*—The work in this year will deal with Commercial Literature and Correspondence. The object of this course will be not only to give facility in the conduct of correspondence, but also, by accustoming the student to the perusal of typical examples of foreign commercial, financial, statistical, and industrial literature, to enable him to keep abreast for the future with important economic developments in other countries.

Students will be allowed to select the course in Commercial Literature and Correspondence only in those languages in which they have reached the proficiency demanded at the Intermediate Examination.

*Pure and Applied Sciences.*—See the regulations of the First and Second Years.

*Courses in Art and in the Metal Crafts.*—Students who have taken the courses at the Vittoria Street School in their first and second years, may satisfy the Requirement 9 by continuing, at the same school, the course in *Drawing and Modelling*, together with that in selected *Processes*.

**Admission of Graduates from other Universities.**

Graduates, or persons who have passed degree examinations of other Universities or institutions of University rank, who present evidence satisfactory to the Faculty of Commerce that they are qualified to pursue a special

course of study prescribed by the Faculty, are allowed to matriculate and enter the University and to become candidates for the Degree of B.Com. after *two* years of study or research, provided that they satisfy the Faculty at the end of their first year that their work is of sufficiently high quality. In all such cases, candidates for the degree will be required to present a thesis on an approved subject.

The two years must ordinarily be spent in the University of Birmingham, but under exceptional circumstances the second year may, with the sanction of the Faculty, be spent elsewhere, provided that the occupations or studies of the second year are of a suitable Commercial or Economic character. Students availing themselves of this privilege will be required to present on or before May 3rd, a thesis (two type-written copies), on an approved subject and to offer themselves for examination in prescribed subjects.

#### **Admission of Students from other Institutions.**

The Senate has the power of recognising attendance and examinations at other institutions of University rank as exempting from the whole or part of the first year's requirements for the degree. But the Faculty of Commerce will only recommend the Senate to exercise this power where the courses already taken form a suitable combination with courses in this Faculty. In all cases where a candidate for the degree is exempted from a year of attendance, he will be required to present a thesis on an approved subject.

#### *Foreign Students.*

1. Foreign students who propose to enter the University of Birmingham are desired to communicate with the Dean of the Faculty of Commerce, and to furnish him with particulars as to their previous training, in time to receive an answer before it is necessary for them to leave their country.

2. Foreign students will be admitted to Matriculation without further examination on producing evidence satisfactory to the Registrar that they have attained in the schools of their own country a standard of general education substantially equivalent to that demanded by the Matriculation Examination of the University of Birmingham.

3. Foreign students who are unable to satisfy the above requirement will be permitted to attend the lectures if they are qualified to benefit by them, without passing any examination at entrance. But if they desire to proceed ultimately to the Degree of B.Com., they must pass the Matriculation Examination. They will, however, be allowed, in suitable cases, to offer their native language in lieu of the prescribed English. Candidates who propose to offer other languages than French, German, Italian, and Spanish, at the July Examination, are requested to communicate with the Registrar before April 21st; if at the September Examination, before June 17th. They will still be required to satisfy the examiners in another language, and will be allowed to offer for that purpose any one of the following:—English, French, German, Spanish, Italian, Latin, Greek.

4. Foreign *graduate* students may, under suitable conditions be admitted to the Degree of B.Com. within two years after their Matriculation. The Ordinance on this subject will be found above.

5. All foreign students are required to reside in lodgings on the Secretary's list, and to give notice in the office of any change of address.

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#### M.Com. Degree.

Bachelors of Commerce may be admitted to the Degree of M.Com. after a further course of training extending over not less than one academic year. They will be required (1) to present a thesis showing powers of inde-

pendent investigation and judgment, and (2) to pass such examination on subjects within the scope of the Faculty of Commerce as the Faculty may determine in each case. Candidates devoting one year only to the necessary preparation will be required to give their whole time to study either in the University of Birmingham or (on the approval of the Faculty) in some other University or institution of University character. Candidates may, however, extend their preparation over two or more years ; and, in this case, service in manufacturing, commercial, or financial establishments, for a minimum period of two years, may (with the permission of the Faculty) be accepted in lieu of the period of study in a University, provided that the service is of such a kind, in the judgment of the Faculty, as to be suitable for the purpose.

*Forms of entry may be obtained from the Registrar, and should be returned to him, together with two type-written copies of the thesis presented, on or before May 3rd.*

### Fees.

The Composition Fee for the whole curriculum of instruction is £22 11s. 6d. for the first year, and £24 13s. 6d. for each of the second and third years. This includes the Membership Fee of £1 11s. 6d. Graduate or advanced students proceeding to the Degree of B.Com. in two years pay the fees of the second and third years.

The other fees are as follows :—

	£	s.	d.
Matriculation .. . . ..	2	0	0
Matriculation by virtue of any of the examinations accepted in lieu of the Matriculation Examination of this University .. . . ..	1	0	0
First Examination .. . . ..	2	0	0
Second Examination .. . . ..	2	0	0
Third Examination .. . . ..	4	0	0
Admission to the Guild of Graduates ..	0	10	0
M.Com. Examination .. . . ..	5	0	0

**Non-Matriculated Students.**

Each of the classes in the Faculty of Commerce is open to all persons who are capable of taking advantage of the instruction offered, whether they have matriculated or not; and pass-certificates will be granted at the end of each session to students who are not candidates for degrees on the results of the class examinations in each course.

The conditions of admission in the case of non-matriculated students are identical with those for similar students in the Faculties of Science and Arts. They include Registration in the Secretary's office, and the payment of Fees for the particular courses selected (given below with the several syllabuses), together with a Membership Fee.

But although only students who have been matriculated can, as a rule, become candidates for the degree of Bachelor of Commerce, the Senate has power to recognise the attendance of non-matriculated students at courses of study as part of the qualification for a degree.

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**HOURS OF LECTURES.**

*The hours assigned in the following syllabuses to the several courses are altogether provisional.* Owing to the wide range of choice allowed in the requirements for the degree of B.Com., it will often be impossible definitely to arrange the hours before the beginning of term.

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## Syllabuses of Courses.

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### COMMERCE AND FINANCE.

*Professor of Commerce* : W. J. ASHLEY, M.Com.; M.A. (Oxon.), Hon. Ph.D. (Berolin), late Fellow of Lincoln College, Oxford.

*Professor of Finance* : A. W. KIRKALDY, M.Com.; M.A. B.Litt. (Oxon.).

*Assistant Lecturer* : EGBERT J. W. JACKSON, B.A. (Sheffield).

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#### Commerce.

##### COURSE I.—FIRST YEAR.

PROFESSOR ASHLEY.

The Industrial and Commercial Organisation and Resources of the British Empire; with particular regard to the great self-governing Colonies and to India.

Tuesdays and Fridays, at 9.30.

FEE: £4 4s.

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##### COURSE II.—SECOND YEAR.

The Industrial and Commercial Organisation and Resources of the United States, South America, Germany, France, Russia, Belgium, and Italy.

Mondays and Fridays, at 2.30.

FEE: £4 4s.

The two foregoing courses will set forth the modern development and the structure and position of industry and trade to-day in the leading countries of the world. This will involve a consideration of geographical position and natural resources on the one side, and, on the other side, of the recent economic history, of the present supply and organisation of capital and labour, and of the state of the mechanical arts.

Commercial History and Commercial Geography will be largely introduced ; but they will be treated in relation to one another, and in close connection with the consideration of underlying economic causes.

### COURSE III.—THIRD YEAR.

#### PROFESSOR ASHLEY.

Business Policy, in its main principles, as indicated by industrial and commercial experience.

Tuesdays, at 12.30 ; and Thursdays, at 9.30.

FEE : £5 5s.

The course will deal with such topics as the following : The Institutions of Trade ; the Legal Organisation of Business Undertakings ; Price and Cost ; Cost Accounts ; Commercial Cycles ; Credit ; Methods of Sale ; the Scale of Manufacture ; the Scope of Manufacture ; Combination and Amalgamation ; the Location and Laying-out of Works ; Methods of Remuneration ; Hours of Labour ; Staff Organisation ; Questions of Manufacturing Policy ; Methods of Industrial Finance.

#### General Economics.

### COURSE I.—FIRST YEAR.

#### SOCIAL ECONOMICS.

#### PROFESSORS ASHLEY AND KIRKALDY.

Thursdays, at 12.30, and a second day and hour to be arranged.

*A.—Industrial History* (Professor Ashley). Winter Term.

The lectures of the first term will be devoted to a sketch of the economic history of England, both as an important part of the general history of the nation, and as a necessary introduction to the analysis of present-day economic conditions.

FEE : £1 1s.

*B.—Elementary Economics* (Professor Kirkaldy). Spring Term.

In the second term the nature of such modern phenomena as are indicated by the terms Capital, Rent, Wages, Profit, Interest, etc., will be analysed ; and most

of the topics will be briefly considered which are usually treated of in text-books of Political Economy.

FEE: £1 1s.

C.—*Social Movements and Theories* (Professor Kirkaldy).  
Summer Term.

The lectures this term will deal with the chief social movements and theories of the 19th and 20th centuries, including Co-operation, Communism, Socialism, Syndicalism, etc.

FEE: £1 1s.

Either part of the course can be taken separately.

. *COURSE II.—SECOND or THIRD YEAR.*

**Advanced Economic Analysis.**

PROFESSOR ASHLEY.

Fridays, at 11.30, during the Spring and Summer Terms.

FEE: £1 1s.

This course will deal with the problem of Distribution as treated by modern economists, and will give special attention to the writings of Adam Smith, Ricardo, Marx, Jevons, and Marshall.

(Given in 1915-16.)

**Economics of Transport.**

*SECOND or THIRD YEAR.*

PROFESSOR KIRKALDY.

Wednesdays, at 12.30.

FEE: £1 11s. 6d.

The course will give an outline survey of the various means of transportation, with a more particular treatment of railways—their development and organisation. The forces influencing railway rates will be considered; and the attempts of various governments to control or manage railways will be explained and criticised. Some attention will also be given to ocean freights; as well as to canals and other means of internal communication.

(Given in 1915-16.)

**Public Finance.***SECOND or THIRD YEAR.***PROFESSOR KIRKALDY.**

Mondays, at 12.30.

FEE: £1 11s. 6d.

This course will treat of Public Expenditure, Public Revenue and Public Credit, as illustrated especially in the national, county, and municipal experience of Great Britain. It will discuss the principles and methods of Taxation, and the methods of contracting and extinguishing Debt; and it will include a comparison with foreign systems of raising revenue.

Students will examine the last British Budget, and will read a number of the more important Budget speeches of recent decades.

The course is recommended to students who propose to enter, or are already engaged in, municipal or banking service.

(Given in 1914-15.)

**Technique of Trade.**

(INCLUDING BANKING AND EXCHANGE.)

*THIRD YEAR.***PROFESSOR KIRKALDY.**

Mondays and Wednesdays, at 11.30.

FEE: £4 4s.

This course will deal with the organisation of the great staple markets and commercial institutions at home and abroad, the chief technical terms, and the most important mercantile documents. It will include an account of the English Banking System as compared with those of the United States, France, and Germany; and it will explain the mechanism of the Money Market and of Foreign Exchange.

**Statistics.***SECOND or THIRD YEAR.*

PROFESSOR ASHLEY.

Fridays, at 11.30, during the Spring and Summer Terms.

FEE: £1 1S.

This course is intended to serve as an exposition of the statistical methods most commonly employed rather than as a description of mere results. The chief governmental statistics of Great Britain dealing with trade and manufactures will be examined; and an attempt will be made to indicate after a consideration of the mechanism for securing information employed in each case, the extent to which the results are of value, and the way in which they might be rendered more serviceable.

(Given in 1914-15.)

**The Commerce Seminar.**

PROFESSORS ASHLEY AND KIRKALDY.

THROUGHOUT THE THREE YEARS: Saturdays, 9.45 to 11.15.

FEE: £4 4s. each Session.

The purpose of the Seminar is to train students in independent investigation and reasoning; and the attendance of all candidates for the degree of B.Com. is compulsory. A subject is assigned some weeks beforehand to each member of the Seminar. He consults the literature of the subject and makes such inquiries as the Professor may suggest; and then prepares a paper, which is read in the Seminar, and there criticised. Incidentally an effort is made to give the members of the Seminar some practice in the art of clear and vigorous exposition and to accustom them to the preparation of terse and business-like reports.

**ACCOUNTING.**

PROFESSOR CHARLES E. MARTINEAU, M.Com. ; M.A.  
(Cantab.), F.C.A.

**COURSE I.—FIRST YEAR.**

Wednesdays, at 11.30.

FEE : £1 11s. 6d.

This course provides systematic instruction in the elements of book-keeping by Double Entry ; but, like the more advanced courses, it aims at providing the students with a sound knowledge of the science of accounting, rather than at training them in the craft of keeping books. The course comprises a description of all the usual subsidiary books, dealing separately with non-trading, trading, and manufacturing concerns ; the posting of the Ledger or Ledgers ; the extraction of the Trial Balance ; and the preparation therefrom of the periodical Balance Sheet, and of Trading and Profit and Loss Accounts. The distinction between Capital and Revenue, between Fixed and Floating Assets, and the nature of Accounts generally will also be fully dealt with.

**COURSE I.—A**

FEE : 10s. 6d.

The Professor of Mathematics (Dr. Heath) will, from time to time, give during the Winter Term a short course of lectures on the Theory of Compound Interest, Annuities and Sinking Funds, together with an explanation of the construction and use of Interest, Annuity, Life and Sinking Fund Tables. Opportunity will also be taken in connexion with this course to give some training in rapid arithmetical methods. The course is recommended for Accountants, Surveyors and Actuaries, but is not obligatory on students in the Faculty of Commerce.

Students who desire to take this course are requested to inform the Dean on or before September 19th.

*COURSE II.—SECOND YEAR.*

SECTION A, Wednesdays, at 10.30.

FEE: £1 11s. 6d.

This course deals with the more advanced problems arising on the application of the principles of Accounting to practical business, and includes *inter alia* an explanation of the following matters:—The Sectional Balancing of Ledgers in a large undertaking; the formation of Periodical Accounts; and Systems of Internal Check designed to avoid or detect errors in the book-keeping and loss from fraud. The nature and scope of Staff and Professional Audits will also be considered.

The course further comprises a survey of the chief matters of importance in connection with Company Accounts, with special reference to the problems arising in connection with New Companies, the general principles underlying Assessment for Income Tax, and the preparation of Accounts for Income Tax Returns and Appeals and for Claims for the return of Income Tax overpaid.

The principal difficulties arising in connection with Partnership Accounts, and the most fruitful causes of dispute between partners will also be considered.

Attention will be given during this course to the Double-Account System, and to the various methods in use for provision against the Depreciation of Plant, Machinery, and other Wasting Assets.

Such questions as Reserves, Reserve Funds, Sinking Funds, Profits, Goodwill and the like will be discussed with the object of making students familiar with their value not merely for the purposes of periodical Balance Sheets, but also for providing that prompt information which is essential for the due success of business undertakings.

Students may be exempted, with the consent of the Dean of the Faculty, from such parts of this course as are too special or technical for their individual requirements.

SECTION B, Fridays, at 10.30.

FEE: £1 11s. 6d.

This course will be utilised to deal at greater length with some of the more important subjects comprised in Section A; and it is especially designed to meet the requirements of those students who, for want of practical experience, may find it difficult to follow the course of instruction there given.

*COURSE III.—THIRD YEAR.*

Fridays, at 9.30.

FEE: £4 4s.

The course will begin with a discussion of Statistical Accounts and of Head Office and Branch Accounts, illustrating the method of centralising the book-keeping of branches.

Departmental Book-keeping and Accounts, Stock and Stores Accounts, and Advanced Costing and Cost Accounts, suitable for various undertakings, will also be dealt with.

Attention will be called to the several possible systems of Costing, and the merit and weaknesses of each; the varying circumstances to be borne in mind in particular businesses when constructing a system; and the necessary limitations of Cost Accounts.

Typical published Balance Sheets will be examined, and students will be instructed in their interpretation.

The course will also include an outline of the distinctive features of the accounts of different classes of undertakings connected with the various leading industries, while the special characteristics which mark the accounts of Local Authorities will also be included.

It embraces also an explanation of the salient features in connection with Executorship accounts, and of the Amalgamation and Reconstruction of Companies.

Card and Loose-leaf Ledgers will be dealt with, together with other labour-saving devices of recent introduction.

**Accounting IB.**

(Engineering, Metallurgical and Mining Students.)

Tuesdays, at 10.30, at Edgbaston.

The greater maturity of the Technological Students in the last year of their course permits of their taking more rapidly the whole of the instruction given to the first year students in the Faculty of Commerce (see page 452). The third term is devoted to such parts of the second and third year courses as are of special importance to technical experts; such as Depreciation, Reserves and Sinking Funds, Goodwill, Cost Accounts, Statistical Returns, etc.

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**COMMERCIAL LAW.**

*Professor:* FRANK TILLYARD, M.Com.; M.A. (Oxon.); Barrister-at-Law.

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**Elementary Commercial Law.****SECOND YEAR.**

Thursdays at 2.30 a.m.

FEE: £1 11s. 6d.

This course consists of general introductory lectures on the elements of (a) the law of persons, including agency, partnership, and incorporated trading companies, (b) the law as to bank notes, cheques, bills of exchange, and other negotiable instruments, and (c) the law of contracts.

**Advanced Commercial Law.****THIRD YEAR.**

Two hours a week throughout the year.

FEE : £3 3s.

In the Winter Term there will be two sections of an hour a week :

A.—Bankruptcy.

B.—Sale of Goods and Carriage of Goods.

In the Spring and Summer Terms there will be three sections of an hour a week :

C.—Bills of Exchange, Goodwill, Trade Marks and Patents.

D.—Agency, Partnership and Company Law.

E.—Industrial Legislation.

This section deals with the law of master and servant (including the acts relating to the payment of wages and to fines, etc.), employers' liability for accidents, and the legal position of trade unions. It treats also of the factory and public health acts, and of their administration, so far as they relate to works, of trade boards, and of insurance against sickness and unemployment.

FEE as a separate course : £1 1s.

Candidates for the degree of B.Com. take sections A, B, C, and *either D or E*; and should consult Professor Tillyard as to their choice in the Winter Term.

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**GRADUATES' COMMERCE DIPLOMA.**

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Graduates in Engineering, Mining, and Metallurgy of this University, and Graduates of this or other Universities who have passed *either* the examination in *Accounting II* or in *Accounting for Engineers* in this University, *or* an examination elsewhere accepted as equivalent by the Faculty of Commerce of this University, will be permitted to enter upon a one year's course of study leading to a Diploma, after examination in the following subjects:—

General Economics I.

Commerce III (Business Policy).

Technique of Trade (in part).

Methods of Statistics *or* Economics of Transport.

Industrial Law.

Accounting III.

and after attendance at the Commerce Seminar.

The Faculty has the power to exempt candidates from attendance and examination in certain of the above courses, if satisfied that they have already taken courses of substantially the same character elsewhere.

The necessary studies for the Diploma will usually engage the whole time of the session ; and they can never be combined with any considerable part of the work for a Master's degree in any faculty.

The Composition Fee for all the above courses (including, also, the Membership Fee) is £21. It will, however, be possible to spread the work required over two years ; and in this case the fees payable will be those for the several courses, as set forth elsewhere.

Fee for Examination, £2.

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## TIME TABLE.

SUBJECTS.	Mon.	Tues.	Wed.	Thurs	Fri.	Sat.
Commerce I ..	..	..	9.30	..	..	9.30 ..
Commerce II ..	2.30	..	..	..	2.30	..
Commerce III ..	..	..	12.30	..	9.30	..
Gen. Economics I ..	..	..	..	..	12.30	..
" " II* ..	..	..	..	..	..	11.30 ..
Economics of Transport ..	..	..	..	12.30	..	..
Technique of Trade ..	11.30	..	11.30	..	..	..
Public Finance ..	12.30	..	..	..	..	..
Methods of Statistics*	..	..	..	..	..	11.30 ..
Elementary Commercial Law ..	..	..	..	..	2.30	..
Advanced Commercial Law† ..	..	..	Hours to be arranged			
Accounting I ..	..	..	..	11.30	..	..
" IB ..	..	..	10.30	..	..	..
" 1J { A ..	..	..	At Edgbaston.	..	..	..
" { B ..	..	..	10.30	..	10.30	..
" III ..	..	..	..	..	9.30	..
Seminar ..	..	..	..	..	..	9.45 to 11.15

\* Spring and Summer Terms.

† Hours to be arranged.

## SOCIAL STUDY.

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### TRAINING FOR PUBLIC AND SOCIAL SERVICE.

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#### COMMITTEE :

- W. J. ASHLEY, Ph.D., *Professor of Commerce*, Chairman.  
 JAMES CUNNISON, M.A., *Lecturer in Economics at the Woodbrooke Settlement, Selly Oak, near Birmingham*.  
 A. W. KIRKALDY, M.A., *Professor of Finance*.  
 \*MISS M. CÉCILE MATHESON, *Warden of the Birmingham Women's Settlement; 318, Summer Lane, Birmingham*.  
 J. H. MUIRHEAD, LL.D., *Professor of Philosophy*.  
 \*Miss ELIZABETH NEWCOMB, *Organiser of Social Work at the Woodbrooke Settlement*.  
 \*Miss HELEN NEWILL, *Head of the Diocesan Training Home; 315, Hagley Road, Birmingham*.  
 \*G. A. NUTT, B.A., *Secretary of the City of Birmingham Aid Society*.  
 \*The Rev. H. T. CARNEGIE, M.A., *Head of Cathedral House*.  
 JOHN ROBERTSON, M.D., *Medical Officer of Health of the City of Birmingham*.  
 MISS ROSE SIDGWICK, M.A., *Lecturer in History*.  
 \*FRANK TILLYARD, M.A., *Professor of Commercial Law*.  
     \* Sub-Committee for Practical Work.

#### THE CITY OF BIRMINGHAM AID SOCIETY

(Organising Secretary—G. A. NUTT, B.A.,  
 145, Great Charles Street),  
 and

#### THE BIRMINGHAM CHARITY ORGANISATION SOCIETY

(Secretary—Miss M. LAMB, 293a, Broad Street)  
 provide the necessary opportunities for office work.  
 (See Regulations, page 464).

*ADVISORY BOARD :*

The Rev. SIDNEY M. BERRY, M.A.

R. H. BEST.

ARTHUR BRAMPTON, J.P.

EDWARD CADBURY.

T. A. CASH.

R. J. CURTIS.

Councillor NORMAN CHAMBERLAIN, M.A.

The Very Rev. W. MOORE EDE, D.D.  
*(Dean of Worcester).*

Miss F. GODFREY.

JOHN T. HOMER.

Alderman JOHN HENRY LLOYD, M.A

Professor LOFTHOUSE.

Miss E. H. MAJOR.

The Rt. Rev. MONSIGNOR PARKINSON, D.D.

Councillor GEORGE SHANN, M.A.

A. H. D. STEEL-MAITLAND, M.P.

The Rt. Rev. HENRY RUSSELL WAKEFIELD, D.D.,  
*(Bishop of Birmingham).*

The Rt. Hon. J. W. WILSON, M.P.

Miss G. T. YOUNG, M.A.

And one Representative from each of the following Organisations :

The National Union of Women Workers  
*(Birmingham Branch).*

The Parents' National Educational Union  
*(Birmingham Branch).*

The Birmingham Trades Council.

The Co-operative Union : Midland Section.

The Workers' Educational Association (Midland Area).

The Women's Employment Bureau.

And the Members of the Committee.

A Committee, consisting of teachers in the University of Birmingham and of representatives of various institutions in the city, has been formed to provide a course of systematic instruction, combined with practical training, for those who propose to engage in public and social service. It has in view the needs especially of the following classes :—

- (1) Those who desire to prepare themselves for the duties of elected or co-opted members of local governing bodies.
- (2) Those who desire to engage as officials in national or municipal administration (*e.g.*, poor law, sanitation, housing, labour exchanges, school care, insurance, etc.).
- (3) Those who desire to take part in philanthropic work, whether as volunteers or as official secretaries and organisers of guilds of help, charity organisation societies, etc.
- (4) Those who desire to act as "social secretaries" and "welfare workers" in factories.
- (5) The clergy and church workers of the several denominations.
- (6) The officials of trade unions, co-operative societies, friendly societies, and similar organisations.

The programme of instruction and training can be accomplished, by students who have already had some practical experience, during the course of one academic year, beginning in October. But in the case of many students it will be advisable to spread the programme over two academic years. Those who have had no practical experience are advised to put themselves into communication with one of the Members of the Practical Work Sub-Committee six months or more before entering the University, and to arrange to undertake during the interval some volunteer work of a suitable nature in their own neighbourhood. Candidates for the diploma, who are under the age of twenty, are required to obtain the permission of the Committee before entering upon the training, and to communicate with the Chairman.

## THE SOCIAL STUDY DIPLOMA.

The requirements for the Diploma fall under three heads :—

- I. University Courses.
- II. Visits of Observation.
- III. Practical Work.

### *I.—UNIVERSITY COURSES.*

#### *WINTER TERM.*

- (1) **Industrial History.** Professor ASHLEY, Thursdays, at 12.30 p.m., and a second day and hour to be arranged.  
FEE: £1 1S.
- (2) **Local Government.** Miss SIDGWICK. Mondays, at 4.30 p.m. FEE: 10S. 6d.
- (3) **Sanitation and Hygiene.** Dr. ROBERTSON. Wednesdays, at 5.45 p.m.; and six Demonstrations on Saturdays, at 2.30 to 5 p.m. Fee: £1 1S.

#### *SPRING TERM.*

- (4) **Elementary Economics.** Professor KIRKALDY. Thursdays, at 12.30 p.m., and a second day and hour to be arranged  
FEE: £1 1S.
- (5) **Industrial Legislation.** Professor TILLYARD. Mondays, at 3.30 p.m. Fee: (for the Spring and Summer Terms) : £1 1S.
- (6) **Social Philosophy.** Professor Muirhead. Mondays, at 5.30 p.m.; and Discussion Class at a time to be arranged.  
Fee (for the Spring and Summer Terms) : £1 11S. 6d.

#### *SUMMER TERM.*

- (5) **Industrial Legislation (continued).** Professor TILLYARD. Mondays, at 3.30 p.m.
- (6) **Social Philosophy (continued).** Professor MUIRHEAD. Mondays, at 5.30 p.m.
- (7) **Social Movements and Theories.** Professor KIRKALDY. Thursdays, at 11.30 a.m., and a second day and hour to be arranged. FEE: £1 1S.

The Committee has the power of accepting, in lieu of any *three* of the above courses, courses of study of the same subjects pursued elsewhere, if it is satisfied that such courses have been of substantially the same character and standard.

In addition to the Class Fees, all students pay a Membership Fee, (Men, £1 11s. 6d. per session, 12s. 6d. per term ; Women, £1 6s. od. per session, 10s. 6d. per term) admitting to the use of the Library and of the Club Rooms.

The Examinations in Courses 1—3 will take place at the end of the Winter Term ; those in Courses 4—6 at the end of the Summer Term in connection with the Degree Examinations. Examination Fee, before entering the Summer Examinations, £1.

## *II.—VISITS OF OBSERVATION.*

Some twenty visits will be paid to institutions, etc., of interest to social students (by kind permission of the several authorities). As far as possible these visits will be paid in the Winter and Spring Terms ; usually on Thursday afternoon. Their general scope is indicated by the following classification :—

- I. **Administration.** (a) POOR LAW. Workhouse, Infirmary. Receiving House for Children. Cottage Homes. Epileptic Colony. (b) EDUCATION. Infant and Elementary Schools. Kindergartens. Schools for Defective, Blind, Deaf, Crippled, and Delicate Children. Home for Defective Children. Care Committees. Technical and Art Schools. (c) JUSTICE. Children's Court. Remand Home. Reformatory and Industrial Schools.
- II. **Sanitation and Hygiene.** Housing Improvements. Hospitals (General and Special). Elementary Schools (Hygiene and Domestic Teaching).
- III. **Industrial Conditions.** Factories. Home Industries and Domestic Workshops. Labour Exchange.

Students will be required to attend the visits arranged, unless exemption has been granted by the Committee on the ground of previous experience.

Unless otherwise provided for, students will be required to pay these visits under the direction of Miss Matheson (Warden of the Women's Settlement), who will also arrange for the necessary explanations as to the administration of the Poor Law and of the laws affecting children.

FEE : £1 1s. od.

Institutions which desire to arrange an independent series of visits for their own students will furnish the Committee with a schedule of their proposed arrangements at the beginning of each term.

All students are required to write brief accounts of the visits, and notes of the accompanying explanations ; and the note books containing them must be sent, at the end of each term, to the Member of the Practical Work Sub-Committee who arranges the series of visits which they attend.

### *III.—PRACTICAL WORK.*

The following list is intended to indicate the general character of the practical work of which students can gain experience in Birmingham :—

#### **A.—Office Work.**

This includes Correspondence and the preparation and filing of systematic Records (use of Case-papers, Indexing, Mutual Registration, etc.) ; and attendance at Case Committees.

#### **B.—Visiting.**

This includes Visiting in connection with such agencies as the City Aid Society and the Charity Organisation Society for the purpose of investigation ; as well as Systematic Visiting for other purposes.

Under the latter head may be grouped *Occasional Visiting* in connection with (a) Care Committees, (b) the Country Holiday Fund, (c) Provident Dispensaries ; and *Continuous Visiting* in connection with (a) Provident Collecting, (b) District Visiting, (c) Child Care and After-Care, (d) Rent Collecting.

#### **C.—School and Club Work.**

Definite work as a regular helper in an approved school, club, class, guild of play, or other meeting.

The Practical Work of candidates for the Diploma must include some experience under the head A, and some experience under at least one of the heads B and C.

The arrangements for this purpose will be made by the individual Members of the Practical Work Sub-Committee (for whom see page 459) ; and candidates for the Diploma will be required to state upon their entry

forms the Member of the Sub-Committee under whom they propose to place themselves. They are requested to call upon the Chairman of the Committee, if possible during the week preceding the beginning of the Winter Term. The Session opens on the first Tuesday in October.

The Members of the Practical Work Sub-Committee will report to the Committee each term on the work of the students under their charge ; and no student whose reports have been unsatisfactory will be awarded the Diploma.

Students who have already had practical experience in the administration of the poor law ; in "welfare" work in factories ; in the office work of trade unions or friendly societies ; in the duties of health inspectors or visitors ; or in any of the branches of work outlined above, will be exempted from such parts of the Practical Requirements as, in the opinion of the Committee, are unnecessary in their particular cases.

In order to encourage the attendance of suitable students of limited means, it is proposed to offer three Bursaries of £10 each. Applications for these Bursaries should be accompanied by a confidential statement as to previous career, aim of study, and means, addressed to the Chairman of the Committee, on or before the fourth Monday in September.

The fees for all the required classes, etc., together with the Membership and Examination Fees, amount to £10 19s. 6d. for men, and £10 14s. for women. If the course is spread over more than one year, the candidates will pay the several Class and Examination Fees as they are incurred, and a Membership Fee per term of 12s. 6d. for men and 10s. 6d. for women.

#### HIGHER DIPLOMA.

Candidates who have satisfied all the requirements for the ordinary Diploma with a high degree of credit may be granted a Higher Diploma after a second year of study.

With the consent of the Social Study Committee, persons who have already taken, with a high degree of credit, courses similar in general character and range to those required for the ordinary Diploma, may become candidates for the Higher Diploma. Unless they have already fulfilled, to the satisfaction of the Committee, the requirements for the ordinary Diploma with regard to Practical Work, they will be required to do so while working for the Higher Diploma, and for this purpose to place themselves under one of the Members of the Practical Work Sub-Committee (for whom see page 459).

Candidates will be required to submit to the Committee a Thesis embodying the results of an original investigation into economic or social conditions, conducted during the period of study under the direction of some Member of the Committee, and the general supervision of the Chairman. They must also take two of the following University courses (unless exempted by the Chairman on the ground of previous studies) :

- (1) **Advanced Economics.** Professor ASHLEY. Fridays, at 11.30 during the Spring and Summer Terms (1915-16). Fee: £1 1s.
- (2) **Public Finance.** Professor KIRKALDY. Mondays, at 12.30 p.m. (1914-15). Fee: £1 11s. 6d
- (3) **Methods of Statistics.** Professor ASHLEY. Fridays, at 11.30 a.m., during the Spring and Summer Terms (1914-15). Fee: £1 1s
- (4) **Political Philosophy.** Days and hours to be arranged.
- (5) **Housing and Town Planning.** Mr. RAYMOND UNWIN. Days and hours to be arranged.

It should be noticed that the above courses will not all be available every year; and reference should be made on this point to the Syllabus of the subject.

Candidates for the Higher Diploma will pay the fees for the courses selected, together with the Membership Fee of £1 11s. 6d. for men, and £1 6s. for women, and an Examination Fee of £2 on sending in their Thesis

## SCHEME FOR COURSE FOR JOURNALISTS.

The University has instituted the following scheme of instruction for Journalists, until such time as a full degree course in one of the Faculties, with the technicalities of journalism as one of the subsidiary subjects, can be instituted.

Journalists of the neighbourhood are advised to attend University lectures for five hours a week for two years, and to take the usual terminal examinations. In that case the University would issue a certificate at the end of the period, setting out the nature of the courses of instruction followed, together with the results of examinations. Candidates would be admitted to any of the existing courses of lectures in the University, but the following group of subjects is recommended as specially suitable for journalists :—

1. English Literature. Two hours a week.
2. General European History. Three hours a week for one and a half terms.
3. A course in Modern Languages. French or German.
4. Commerce I.
5. General Economics I.
6. Public Finance.
7. The Social Study Course.
8. Some Science Subject.

A composition fee of five guineas per Session will be charged for a course of not more than five hours per week, and no additional charge will be made for examinations. If such students desire to use the University Club a membership fee of £1 1s. 6d. will be charged in addition.

Professor de Sélincourt has been appointed to act as general adviser of the students of Journalism, and students intending to join the course should communicate with him.

## EXHIBITIONS, SCHOLARSHIPS, PRIZES, &c.

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### Entrance Exhibitions.

Two Entrance Exhibitions, not exceeding in value the sum of £25 each, will be awarded on the results of the Intermediate Examinations in June 1915, provided that a proper standard is reached by the external candidates, but otherwise they will be given to the best candidates at the Matriculation Examination in July. Candidates for the Exhibitions must be under the age of nineteen years on the first day of the examination. The Exhibitions will be tenable at the University during the Session immediately following the Examination, provided that the exhibitioner becomes a matriculated student of the University and attends courses leading to a degree, and will be paid solely in the form of remission of class fees.

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### Fenthams's Trust Exhibition.

An Exhibition, not exceeding in value £75 a year, tenable for three years, will be awarded on the result of the Matriculation Examination in July 1915, to a candidate who has for a period of five years resided in the City of Birmingham.

Further information respecting the award of the Exhibition and forms of entry may be obtained on application to the Secretary, George Fenthams Charity, Blue Coat School, Birmingham.

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### University Exhibitions.

Two exhibitions, not exceeding in value the sum of £30, tenable for one year, are awarded on the results of the Intermediate Examinations in Science and Arts on the nomination of the Faculties concerned. The exhibitions are tenable during the University Session immediately following the examinations, and will be paid solely in the form of remission of fees.

The exhibition in the Faculty of Science may be renewed for a second year upon receipt of reports of satisfactory progress. An exhibition held by a student in Engineering may be renewed for a third year, on the recommendation of the Faculty of Science.

In the Faculty of Arts, an exhibition tenable during the student's third year will be awarded on the result of the Second Year's Arts Examination.

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### Special Exhibitions in the Faculty of Arts.

Two University Exhibitions not exceeding in value the sum of £30 tenable for one year are awarded to students in the specialised Schools of the Faculty of Arts. One of these exhibitions is awarded on the results of the first year's examination, and the other on the results of the second year's examination in the various specialised schools. The exhibitions are tenable during the University Session immediately following these examinations, and are paid solely in the form of remission of fees.

**Sands-Cox Scholarship.**

The Sands-Cox Scholarship, of the value of £42, is awarded to the Candidate amongst those entering as students of the Faculty of Medicine in the month of October, who shall have obtained the highest marks at the Matriculation Examination in the previous month of July or First Medical Examination in the previous month of June, provided that—

- (a) No candidate shall be elected whose age exceeds nineteen on the first day of the examination.
- (b) No candidate shall be elected who shall not have attained to a position in the first class, and satisfied the Examiners that he has shown sufficient merit for the award.
- (c) The payment shall be made in two annual instalments, and in the form of remission of fees.
- (d) The second instalment shall not be paid until the scholar presents a certificate from the Dean, showing that his first year's work has been satisfactory.

*Candidates desirous of competing for this Scholarship should notify the Registrar when entering for the Examination.*

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**University Entrance Scholarships.**

The University will offer for competition on the results of one of the Intermediate Examinations (Science, Arts and First Medical), held in June, or on the Matriculation Examination held in July, 1915, fourteen Entrance Scholarships, tenable for four years at the University, giving free admission to the Degree Courses in any Faculty, to candidates who apply for them on the ground of inability to pay University class fees. Competitors may further apply for an annual grant towards maintenance (which will in no case exceed £30), on the ground that they are unable to avail themselves of such Scholarships without a maintenance grant in addition.

There will be no fees for the examination, but if any candidate wishes to take advantage of it for the purpose

of matriculating, or as part of the qualification for a degree, or for any other purpose, the usual fee of £2 must be paid subsequently.

A further Scholarship is specially reserved for the subject of Music, and will be awarded to a competitor at the Midland Musical Competition Festival upon the recommendation of the adjudicators in consultation with the Professor of the Peyton Chair of Music of the University, who will satisfy themselves that the Candidate is likely to succeed in the future, and will be prepared to take full advantage of the privileges of the scholarship. Provided a suitable candidate is selected the award will be postponed until after the Candidate has completed matriculation. Particulars of the Festival may be obtained from the Hon. Secretaries, Queen's College, Paradise Street, Birmingham.

Scholars will be required to pay the usual annual membership fee of £1 11s. 6d., and the fees for all University examinations leading to degrees, but lecture and laboratory fees will be remitted.

Candidates must be resident within the boundaries of the city, and have been resident for at least one year, and must have been pupils in one of the schools in that area.

Any scholar who has not passed a qualifying matriculation examination, but who has sat for one of the Intermediate Examinations for the purpose of this competition, must complete the Matriculation Examination in the following July or September.

Competitors will be arranged in order of merit, and must reach such a standard as, in the opinion of the University, offers a reasonable prospect of a successful or distinguished career. Confidential reports on the whole school career of candidates, from the Heads of their various schools, will also be taken into consideration in recommending for Scholarships.

Candidates who have satisfied the examination test of proficiency must be prepared to offer evidence as to means and family circumstances, and to answer such enquiries as shall be deemed necessary by the City Education

Committee, who will report as to how far candidates have fulfilled the conditions as to means, and as to what (if any) annual grant for maintenance would be appropriate in each case.

The continuance of each Scholarship from year to year will depend upon satisfactory attendance, conduct and progress of the scholar.

Forms of application for these Scholarships with or without maintenance grants may be had from the Registrar of the University, and when filled up should be returned to him with birth certificate and a letter of recommendation from the Head of the last school attended, on or before April 21st for the Intermediate Examinations, or June 10th for the Matriculation Examination.

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#### Theodore Mander Scholarship.

A fund raised by private subscription, organised by the citizens of Wolverhampton, to establish a memorial to the late Mr. Samuel Theodore Mander, a former Mayor of Wolverhampton, has been devoted to the foundation of a "Theodore Mander Scholarship." The Scholarship, of the value of about £24 per annum, is open to sons and daughters of burgesses of Wolverhampton, and is tenable at the University of Birmingham.

Memorandum as to Scholarship :—

1. That a Scholarship be founded to be called "The Theodore Mander Scholarship," open to sons and daughters of burgesses of Wolverhampton.
2. That the Scholarship be open to those over sixteen at the time of Matriculation, without upper limit of age, and that preference be given to those desirous of attending Degree Courses in the Faculties of Science or Commerce.
3. That the Scholarship be tenable for two or for three years, according to the length of time necessary to obtain a degree in the Faculty chosen.
4. That in the absence of special circumstances, the Scholarship shall only be awarded to a boy or girl just entering the University.

5. That the Scholarship may be withdrawn from any holder who fails to satisfy the Senate in industry and progress ; the said withdrawal to be reported to the Town Council of Wolverhampton.
6. That when a Scholarship is vacant it be awarded upon the results of the Matriculation or Intermediate Examinations, a report of those results being sent to the Town Council of Wolverhampton with a request that they nominate to the Scholarship from amongst those who satisfy the academic qualifications, taking into account the pecuniary circumstances of the several candidates.
7. That the conditions of tenure or award be open to amendment from time to time by joint agreement between the Town Council of Wolverhampton and the Council of the University.
8. That any surplus or accumulated income be used as income and not added to capital.

*The date of the next Examination may be obtained from the Registrar of the University.*

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#### Polytechnic Bursaries.

Two Bursaries, of the approximate value of £45 each for three years, will be awarded on the result of the Matriculation Examination in July, 1915, to candidates who have for a period of five years resided in the city of Birmingham, or any of the following parishes, viz., Yardley, Castle Bromwich, Erdington, Aston Manor, Handsworth, Smethwick, Halesowen, Northfield, King's Norton, and the incomes of whose parents (if alive) do not together exceed the sum of £150 per annum, or who, if their parents or either of them be deceased, are in receipt of an income of not more than 15s. a week. Candidates are required to satisfy the Standing Committee appointed by the Founders that they belong to the class of persons for whom the Scholarships were intended. Forms of application may be obtained from the Secretary of the Birmingham Trades Council.

**Jabez Lones Bursary.**

The income from a fund raised as a memorial to the late Alderman Jabez Lones, of Smethwick, is devoted to the provision of a Bursary tenable at the University by persons who have been resident in Smethwick for at least twelve months, and have been students in the Smethwick Technical School for at least one session. In the first instance, the Bursary is awarded for one year, but may be renewed for two further years provided that the work and progress of the student holding the Bursary are satisfactory. The Bursary is awarded by the University on the results of the Matriculation or Intermediate Examination, subject to confirmation by the Smethwick Town Council. The annual value of the Bursary is about £13.

*Candidates desirous of competing for this Bursary should notify the Registrar when entering for the Examination.*

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**Heslop Memorial Scholarship.**

A Scholarship of the annual value of about £25, in commemoration of the long and valuable services rendered to the city of Birmingham by the late Dr. Heslop, was founded in 1885, by private subscription. The Scholarship is open to all candidates who have been pupils in any of the schools on the foundation of King Edward VI in Birmingham for not less than two years immediately preceding the award of the Scholarship. The Scholarship is awarded by the University in alternate years on the results of the Intermediate Examinations in Science and Arts, and is tenable for two years at the University. The next award will be made in June, 1915. The Scholarship is paid solely in the form of remission of fees.

### The Ascough Scholarship.

A Scholarship of the value of about £36, founded by the daughters of the late Mr. Jesse Ascough, in memory of their father, will be awarded to the candidate who is most distinguished in Chemistry at the Intermediate Science Examination held in June. Candidates may take the part of the Examination which relates to Chemistry for the purpose of competing for the Scholarship, without taking the whole of the Intermediate Examination. The Scholarship is tenable for one year, but may be renewed for a second and third year at the discretion of the Faculty of Science. The Scholarship will be paid in three terminal instalments, and it shall be competent for the Faculty at any time to withhold further payments if the conduct, diligence, or progress of the scholar is regarded as unsatisfactory. Forms of entry may be obtained from the Registrar of the University, and should be returned duly filled up on or before April 21st.

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### The Wiggin Metallurgical Scholarship.

A Wiggin Metallurgical Scholarship (founded by Messrs. Henry Wiggin and Co.) of the value of about £37 10s. per annum, tenable for two years, will be awarded annually to the candidate who does best at the June Intermediate Science Examination (Pure or Applied Science) if there is a candidate of sufficient merit. Wiggin Metallurgical scholars are required to proceed to the degree in Metallurgy.

If there is no candidate of sufficient merit, there will be a special examination (including Metallurgy) held in September, open to members and non-members of the University. The successful candidate shall pursue a course of study for two years under the direction of the Professor of Metallurgy.

**George Henry Marshall Scholarship.**

The George Henry Marshall Scholarship in Classics, of the value of £40 per annum, payable by terminal instalments, tenable for three years, is offered for competition amongst those who qualify for entrance to the Honour School of Classics, the higher papers in Latin and Greek being taken.

Successful candidates are required to enter the Honour School of Classics.

Applications, containing a list of three or four books in Latin and Greek offered for examination by candidates, should be sent to the Registrar not later than April 21st.

The date of the next Examination may be obtained on application to the Registrar.

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**Special Scholarship for Students in German.**

A Scholarship of the value of £50, given by some friends of the University, will be awarded annually for the next five years on the result of the Intermediate Examination held in June in German, supplemented by a higher paper in that subject, on condition that the holder of the Scholarship takes German as his Principal Subject in the Honour School of Modern Languages.

The Scholarship will be paid in three annual instalments of £20 in the first year, and £15 in the second and third years, and it shall be competent for the Faculty of Arts at any time to withhold further payments if the conduct or progress of the scholar are regarded as unsatisfactory.

The Scholarship is offered with the intention of encouraging the study of German, and of promoting better feelings between England and Germany on the basis of a more intimate knowledge of the German nation.

**Birmingham Education Committee Scholarships.**

Five Major Scholarships of the annual value of £50 each for three years, are awarded by the Education Committee of the City of Birmingham on the results of the Matriculation Examination or one of the higher Examinations, viz., the Intermediate Science or Arts Examinations, and the First Examination in Engineering, Metallurgy, or Mining. Candidates must reside within the City of Birmingham and have attended a Primary or Secondary School for not less than two years.

Information respecting the conditions under which the Scholarships are awarded may be obtained on application to the Secretary, Birmingham Education Committee, Margaret Street, Birmingham.

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**Piddock Scholarship.**

A Scholarship of the annual value of £25, tenable for not more than three years at the University of Birmingham, is awarded by the Piddock Trustees on the results of the Matriculation Examination or one of the higher Examinations, viz., Intermediate Science or Arts Examinations and the First Examination in Engineering, Metallurgy, Mining, or Medicine.

Candidates must be under 17 years of age. The Scholarships are awarded periodically to boys who have for at least two years attended either Council Schools or Voluntary Schools in the City of Birmingham.

Further information respecting the conditions under which the Scholarships are awarded may be obtained on application to the Solicitors to the Trustees, Messrs. Lee, Musgrove and Co., 18, Newhall Street, Birmingham.

**William Cooke and Company Scholarship.****REGULATIONS.**

1. This Scholarship of the annual value of £21 has been presented to the University by Messrs. William Cooke and Co., Ltd., the Tinsley Steel, Iron and Wire Rope Works, Sheffield.

2. The Scholarship will be awarded on the result of a triennial examination, the details of which are given below.

3. The Scholarship will be awarded only to students who intend taking the Degree or Mining Diploma, and is tenable for three years.

4. Those eligible for the Scholarship are :—

(a) Mining students articled to Mining Engineers, Colliery Managers, or Colliery Proprietors, whose mines or offices are situated within the area which is educationally under the control of the University of Birmingham.

(b) Other persons actually employed underground or who have been so employed for a period exceeding three years at a Colliery in the area mentioned in Section 4 (a), provided that in both cases the applicant has attained the age of 18 years, and that he intends as soon as he is properly qualified to present himself for the Colliery Manager's First Class Certificate of competency to manage a mine.

5. Regular attendance at lectures and classes and examinations is compulsory.

6. The scholarship may be withdrawn at any time on account of irregular attendance, failure to pass examinations, or bad behaviour.

## EXAMINATION.

1. The date of the next examination may be obtained on application to the Registrar.

2. The examination will be conducted partly by means of printed papers and partly by means of a *viva voce* examination.

3. The subjects in which candidates will be examined are :—

- (1) (a) English History—History of the English People, either (1) 829-1603, or (2) 1603-1900.  
(b) English Literature.
  - (2) Mathematics (Arithmetic, Elementary Algebra, Geometry).
  - (3) Experimental Mechanics (Statics, Hydro-statics, Dynamics), or  
Chemistry (Elementary Inorganic).
  - (4) Elements of Coal Mining.
  - (5) Geology (Elementary, Physical, and Palæontological).
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**The Dudley Scholarship.**

A Scholarship of the value of £30 per annum, given by the Dudley Education Committee, will be awarded by that Committee to a candidate from that district who is qualified to enter the Faculty of Commerce in the University.

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**Birmingham Chamber of Commerce Scholarship.**

A Scholarship in the Faculty of Commerce of the value of £40 per annum has been founded by the Birmingham Chamber of Commerce. It is tenable for three years if the student's progress is satisfactory. The election is made on the nomination of a Committee of the Chamber of Commerce, which includes the Professors of Commerce and Finance in the University. A new election will be made in September, 1916.

### University Scholarships.

Four University Scholarships of the value of £50 a year, tenable for one year after passing the examination for the Degree, may be awarded on the nomination of the Faculties of Science and Arts. These scholarships will carry with them free admission to lectures and laboratories in preparation for the Master's Degree.

Holders of these Scholarships are required to pay the University Membership Fee.

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### Research Scholarships.

In addition to the Priestley and Bowen Research Scholarships, about four Research Scholarships of the value of £50 a year, tenable for one year, may be awarded on the nomination of the Faculties of Science and Arts. The Scholarships will carry with them free admission to the Library and Laboratories of the University for the purposes of research. They will be held subject to the progress and good conduct of the holders, at the discretion of the Faculty concerned.

Holders of these Scholarships are required to pay the University Membership Fee.

*Applications should be sent to the Registrar on or before the 1st of June.*

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### Bowen Scholarships in Engineering.

*(Founded by the late T. Aubrey Bowen, of Melbourne).*

Two Scholarships of the value of about £96 each, tenable for one year (except as hereafter mentioned), are awarded annually.

The objects of these Scholarships are to encourage research in the scientific portions of engineering. The scholarships will be held under the condition that the holder devotes his whole time to research as a student in the University of Birmingham.

Candidates must have spent three years in the Engineering Department of a University College ; preference will be given to candidates who hold an Engineering degree.

In each year two scholarships will be offered, tenable for one year, but in special cases where the scholar has shown considerable capacity for research work, the scholarship may be extended for a further year. The scholarships will be paid in three instalments, and in the event of a scholar's attendance, diligence, or progress being at any time unsatisfactory, the subsequent instalments may be withheld.

The University Fee payable by Bowen Scholars will be £30 for the year, payable in three sums of £10 each, this sum to include the use of the ordinary apparatus and materials, as well as the purchase of such special apparatus and materials as the Professor shall consider desirable.

*Forms of Application may be obtained from the Registrar, and should be returned, supported by details of educational training and references to former teachers and others, on or before the 1st of June.*

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#### Priestley Scholarships in Chemistry.

*(Founded by the late T. Aubrey Bowen, of Melbourne).*

Three Scholarships of the value of about £96 each, tenable for one year (except as hereafter mentioned), are awarded annually.

The object of these Scholarships is to encourage and afford greater facilities for the higher study of chemical science at the University. As far as possible this higher study will take the form of original experimental or theoretical investigation in some branch of Chemistry, pure or applied, to be carried on in the Laboratories of the University, under the direction of the Professor of Chemistry.

In the selection of candidates for these scholarships, preference will naturally be given to present or past students of the University, although outside candidates bearing the necessary credentials will also be eligible. As a general rule only such candidates as have passed through an approved three years' course of study in chemistry and the allied sciences will be accepted.

Under ordinary circumstances the scholarships will be tenable for one year, but the power is reserved of re-nominating for a second or third year in the event of such a course being considered desirable as tending to promote the object which the foundation of these scholarships has in view.

Priestley Scholars will be regarded as ordinary students of the University, and must conform to all the general rules of the University as well as to the special ordinances of the Chemical Department. The scholarships will be paid in three instalments, and in the event of a scholar's attendance, diligence, or progress being at any time unsatisfactory, the subsequent instalments may be withheld.

The University Fee payable by Priestley Scholars will be £30 for the year, payable in three sums of £10 each, this sum to include the use of the ordinary apparatus and chemicals, as well as the purchase of such special apparatus and chemicals as the Professor shall consider desirable.

At the close of his year's tenure of the scholarship, or at any time previous thereto that the Professor may think fit, a scholar shall present the results of his work in the form of a thesis, the arrangements for the publication of which shall be left to the discretion of the University authorities.

*Forms of application may be obtained from the Registrar, and should be returned, supported by details of educational training and references to former teachers and others, on or before the 1st of June.*

**Bowen Scholarship in Metallurgy.**

*(Founded by the late T. Aubrey Bowen, of Melbourne).*

A Scholarship of the value of about £96, tenable for one year, is awarded annually.

This scholarship will be held on precisely similar terms to those laid down above for chemistry, the work engaged on by the scholar having a direct or theoretical bearing on some department of metallurgy. As the prosecution of this work may from time to time entail the visiting of works for the purpose either of personal observation or actual experiment, the Professor will be empowered to authorise the expense of such visits being either wholly or in part defrayed out of the above-mentioned fee paid by the scholar.

*Forms of application may be obtained from the Registrar, and should be returned, supported by details of educational training and references to former teachers and others, on or before the 1st of June.*

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**The Corbett Scholarship.**

*(Founded by the late John Corbett, of Impney,  
Droitwich).*

The Corbett Scholarship, of the value of about £28 a year, payable in the form of remission of fees, is tenable for one year, and is awarded to the student who is recommended to the Senate as the most promising and distinguished student in Mathematics at the end of his or her second year after registration.

**Science Research Scholarship.**

*Awarded by the Royal Commissioners for the  
Exhibition of 1851.*

The Royal Commissioners for the Exhibition of 1851 annually place at the disposal of the University the nomination to a Science Scholarship of the value of £150 a year, tenable for two years, the continuation for the second year being dependent on the work done in the first year being satisfactory to the Scientific Committee appointed by the Commissioners. The student nominated must have studied in the University for three years at least, and must undertake to devote himself to scientific research or the application of scientific knowledge to industries. The Scholarship may be held at any University at home or abroad, or in some other properly equipped institution to be approved of by the Commissioners. The nomination of candidates by the University is subject to revision by the Commissioners, and the privilege of nomination may be withheld by them at any time.

*Applications should be made to the Registrar on or before  
the 1st of January.*

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**Industrial Bursaries.**

These Bursaries, awarded by the Royal Commissioners of the Exhibition of 1851, not exceeding as a rule £100 a year, are designed to assist those persons who, after a course of training in a University or approved Technical College, desire to take up Engineering, Chemical, or other industrial work. They are intended not to facilitate the continuance of collegiate studies by means of post graduate work, but to enable suitable applicants to tide over the period between their leaving College and obtaining remunerative employment in industry.

*Applications should be made to the Registrar on or before  
10th of May.*

### Government Aid towards the Instruction of Science Teachers.

In accordance with a minute adopted by the Right Honourable the Lords of the Committee of Her Majesty's Most Honourable Privy Council on Education, June, 1881 (Science Form, No. 1,126), their Lordships are prepared to pay three-fourths of the fees for certain University courses of instruction for a limited number of Teachers engaged in Science Teaching, on condition that satisfactory reports of their progress (to be ascertained by examination), and of their conduct, be received at the end of the Winter, Spring, and Summer Terms.

Applications for this privilege must be made to the Secretary, Board of Education, Whitehall, London, S.W., not later than the 5th September.

The selection of the applicants will rest with the Board of Education.

NOTE.—One-fourth of the Class Fees, together with the University Membership Fee, must be paid by the student on entrance, under the usual conditions of the University. The remaining three-fourths of the Class Fees will be paid by the Board of Education, in equal instalments, at the commencement of each term, subject, however, to the right of the Board to withhold payment of the second and third instalments should the reports not be satisfactory.

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### The Sunderland Scholarship.

A Scholarship of the value of £50 per annum, tenable for three years on the annual recommendation of the Faculty of Commerce, will be awarded triennially, if a suitable candidate presents himself. A new election will be made in September, 1916.

**Lapworth Scholarship.**

"Lapworth Scholarships," of such value and at such times as may appear desirable, may be awarded to Graduates of the University of Birmingham, or of any other University, for the encouragement of Geological Research, especially in those branches of the science to which Dr. Lapworth's work has been chiefly devoted. The work so done shall be of an original character, and to the advancement of Science, and it shall be summarised in a thesis to be deposited in the University.

It shall not be necessary to award the income for any specific year or years, but if not used it shall accumulate and not fall into the general funds of the University.

If at any time it should appear desirable to use part of the income for the purpose of adding to a Research Library to advance the objects indicated above, this may be done.

*Note.*—The general idea is that the fund shall be used to continue the special kind of work and investigation to which Dr. Lapworth has devoted himself, and with which his name is associated, and that this work shall be associated with the University of Birmingham. It is not Dr. Lapworth's wish that these "Lapworth Scholarships" should be used to enable a student to prepare a thesis for the M.Sc. Degree, but it shall be open to the Council in the event of the presentation and deposition of a thesis of special originality on the lines given above to decide whether such thesis is worthy of the conferment of the M.Sc. Degree.

The date for receiving thesis for the above Scholarship is the first Monday in May.

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**PRIZES.****The Karl Dammann Memorial Prize.**

The "KARL DAMMANN MEMORIAL PRIZE," of the value of about £5, founded by a friend of the late Dr. Karl Dammann, the first Professor of German Language and Literature in Mason College, is awarded annually to the student who is recommended to the Senate as the most promising and distinguished student in German at the end of his or her second or third year after registration. The prize is given in the form of works in the German language.

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**Fiedler Prize in German Literature.**

The "FIEDLER PRIZE IN GERMAN LITERATURE," of the value of £5, given by Mrs. John Meyer, in recognition of the work done by Professor H. G. Fiedler, in his Special Courses on German Literature, is awarded annually to the student who is recommended by the Professor of German Language and Literature as the most distinguished student in German Literature of at least two years' standing after Matriculation. The Prize is given in the form of works in the German Language. No student will be allowed to hold this Prize and the Karl Dammann Memorial Prize in the same year.

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**The Panton Geological Prize.**

The "PANTON PRIZE," of the value of Two Guineas—founded by Mrs. Panton in memory of her husband, the late G. A. Panton, Esq., F.R.S.E.—is awarded to a student in the classes of Local Geology for the best Essay upon a Geological subject to be previously approved by the Professor.

*The essays should be sent to the Registrar on or before September 1st.*

**Annie Deakin Prize.**

The "Annie Deakin Prize," founded in memory of the late Miss Annie Deakin, of Handsworth, by friends and former pupils of her School, of the value of about £1 5s., is awarded annually to the woman who passes the July Matriculation Examination with the highest distinction among those candidates who declare their intention of becoming teachers in Secondary Schools.

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**Bunce Prize.**

The "BUNCE PRIZE," of the value of about £3, founded by the late J. Thackray Bunce, is awarded annually on the result of the Second Year Arts and Intermediate Arts Examinations held in the month of June, £2 being given as a prize in books to the best student in Course II in English Literature, and £1 as a prize in books to the best student in Course I in English Literature.

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**Churton Collins Prize.**

The Churton Collins Prize, of the value of about £3 10s., founded in memory of the late Professor Churton Collins, is awarded annually to the best student in English Literature amongst the third year candidates who offer both English Literature and Latin or Greek as a principal subject for the B.A. Degree.

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**Kenrick Prize.**

A prize of the annual value of £2, founded by J. Arthur Kenrick, Esq., will be offered in June, 1914, 1915, and 1916 for the best work in General European History. This prize is open to all who are taking the full course for the Intermediate B.A. Examination.

**Muirhead Prize.**

A prize of the annual value of about £3 is awarded by the Faculty of Arts, on the report of the Internal and External Examiners on the result in Philosophy as taken at the final Bachelor's Examination by students who have studied Philosophy for two years during their Degree course.

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**Gladstone Memorial Prize.**

The Committee of the Gladstone Memorial Fund offers annually to students of the University a prize of Books, of the value of £5, for an Essay on a subject connected with History, Political Science, or Economics.

Candidates are recommended to consult the Professors of History and Commerce as to the proposed subject for the essay.

*The essays should be sent in to the Registrar on or before the 1st of June.*

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**Austin Prize.**

A prize of the value of about £2, founded in memory of the late Mr. W. H. Austin, M.A., Lecturer in Mathematics, is awarded annually to the student of the highest merit in Pure Mathematics at the Examination for the B.Sc. or B.A. Degree.

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**Collins Prize in Metallurgy.**

A prize of the annual value of about £8, called the Collins Prize in Metallurgy, will be awarded to the student obtaining the highest marks at the Examination in Metallurgy, held at the end of the second year.

## MEDALS.

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### The Heslop Memorial Medal.

The "HESLOP MEDAL," provided out of the proceeds of a bequest to the College by the late Thomas Pretious Heslop, M.D., is awarded annually by the University, on the recommendation of the Senate. The medal, together with a prize in the form of books or instruments, will be awarded each year for the best dissertation accepted for the M.Sc. Degree.

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### The Constance Naden Medal.

The "CONSTANCE NADEN MEDAL," founded by Surgeon Lieut.-Colonel R. Lewins, M.D., in memory of the late Miss Constance Caroline Woodhill Naden, is awarded annually by the University, on the recommendation of the Senate. The medal, together with a prize in the form of books, will be awarded each year for the best dissertation accepted for the M.A. Degree.

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## HUXLEY LECTURESHIP.

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A Huxley Lectureship of the value of £20 per annum has been endowed as a token of profound esteem on the part of the founder for the character of the late Professor Huxley, F.R.S., and in memory of his life and work. A lecture open to all members of the University without payment is delivered in the Winter Term of each Session.

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## HUXLEY LECTURERS.

- 1904.—Professor Sir Michael Foster, K.C.B., F.R.S.
  - 1905.—Professor E. B. Poulton, F.R.S.
  - 1907.—Professor J. J. Thompson, F.R.S.
  - 1908.—Major Ronald Ross, C.B., F.R.C.S., D.Sc., LL.D., F.R.S.
  - 1909.—Professor William Bateson, M.A., F.R.S.
  - 1910.—Professor Percy Gardner, Litt.D., LL.D.
  - 1911.—Professor Henri Bergson, Member of the Institute.  
Collège de France.
  - 1912.—Professor John Joly, D.Sc.
  - 1913.—Sir Arthur Evans, D.Litt., F.R.S.
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## VACATION READING.

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### FACULTY OF SCIENCE.

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#### MATHEMATICS.

- A. H. WHITEHEAD'S *Introduction to Mathematics*, 1s.  
 C. L. DODGSON'S *Euclid and His Modern Rivals*. *Pillow Problems*.  
 H. H. TURNER'S *Modern Astronomy*.  
 W. W. R. BALL'S *Mathematical Recreations and Problems. A Short History of Mathematics*.
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#### PHYSICS.

Students about to enter Course I may read :—

- TYNDALL'S *Sound*.  
 S. P. THOMPSON'S *Light, Visible and Invisible*.  
 SEDLEY TAYLOR'S *Sound and Music*.  
 POYNTING'S *The Earth, its shape, size, weight, and spin*.

Those about to enter Courses II and III may read some of the following :—

- PERRY'S *Spinning Tops*.  
 BOYS' *Soap Bubbles*.  
 ROTCH'S *Sounding the Ocean of Air*.  
 DARWIN'S *The Tides*.  
 NEWCOMB'S *Astronomy*.  
 NEWALL'S *The Spectroscope and its work*.  
 CLERKE'S *System of the Stars*.  
 HALE'S *Stellar Evolution*.  
 FARADAY'S *Experimental Researches in Electricity* (*Everyman*).  
 THOMSON'S *Electric Discharge in Gases*.  
 LODGE'S *Electrons*.  
 POYNTING'S *Pressure of Light*.

Or students may prefer to read some parts of the Text Books suitable for the different Courses.—See the Syllabuses for the Courses in Physics.

## CHEMISTRY.

*A.*—Students intending to enter for the First Year's Course may profitably read :—

KIPPING AND PERKIN'S *Inorganic Chemistry*.

HOLLEMAN'S *Inorganic Chemistry*.

ALEX. SMITH'S *General Inorganic Chemistry*.

SENTER'S *Inorganic Chemistry*.

*B.*—Students intending to enter for the Second Year's Course may profitably read :—

MELLOR'S *Modern Inorganic Chemistry*.

SENTER'S *Physical Chemistry*.

WADE'S *Organic Chemistry*, especially the introductory chapters and those relating to the fatty compounds.

FENTON'S *Outlines of Chemistry*.

*C.*—Students intending to enter for the Third and Fourth Years' Courses may profitably read :—

WADE'S *Organic Chemistry* (revision).

HOLLEMAN'S *Organic Chemistry*.

COHEN'S *Organic Chemistry for Advanced Students*.

WALKER'S *Introduction to Physical Chemistry* (revision).

NERNST'S *Theoretical Chemistry* (4th edit.) or VAN'T HOFF'S *Lectures on Theoretical and Physical Chemistry*.

LACHMAN'S *Spirit of Organic Chemistry*.

ERNST V. MEYER'S *History of Chemistry*.

FINDLAY'S *Phase Rule*.

LEHFELDT'S OR LE BLANC'S *Electro-Chemistry*.

STEWART'S *Recent Advances in Organic Chemistry*.

STEWART'S *Recent Advances in Inorganic and Physical Chemistry*.

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## ZOOLOGY.

### FIRST YEAR.

F. W. GAMBLE'S *The Animal World* (Williams and Norgate).

F. W. GAMBLE'S *Animal Life* (Smith, Elder and Co.)

E. B. POULTON'S *The Colours of Animals* (International Science Series).

- A. R. WALLACE'S *Darwinism* (Macmillan and Co.).
- A. MILNES MARSHALL'S *Lectures on Darwinian Theory* (David Nutt).
- T. J. PARKER AND W. A. HASWELL'S *Text-book of Zoology* (Macmillan and Co.).
- L. DONCASTER'S *Heredity* (Cambridge Univ. Press).

## SECOND YEAR.

- CHARLES DARWIN'S *The Origin of Species* (John Murray).
- CHARLES DARWIN'S *Descent of Man* (John Murray).
- R. H. LOCK'S *Recent Progress in the Study of Variation, Heredity and Evolution* (John Murray).
- T. H. MORGAN'S *Experimental Zoology* (Macmillan and Co.).
- W. BATESON'S *Mendel's Principles of Heredity* (Cambridge University Press).
- J. ARTHUR THOMPSON'S *Heredity* (John Murray).
- R. C. PUNNETT'S *Mendelism* (Macmillan and Co.)
- A. R. WALLACE'S *Island Life* (Macmillan and Co.).
- A. R. WALLACE'S *The Malay Archipelago* (Macmillan and Co.).
- H. N. MOSELEY'S *Notes by a Naturalist on H.M.S. Challenger* (John Murray).
- CARL SEMPER'S *Animal Life* (International Science Series).
- The various volumes of The Cambridge Natural History* (Macmillan and Co.).
- ARTHUR WILLEY'S *Amphioxus and the Ancestry of Vertebrates* (Macmillan and Co.).
- E. B. WILSON'S *The Cell in Development and Inheritance* (Macmillan and Co.).
- W. H. FLOWER AND R. LYDEKKER, *An Introduction to the Study of Mammals, Living and Extinct* (A. and C. Black).
- A. MILNES MARSHALL'S *Vertebrate Embryology* (Smith, Elder and Co.).
- A. SMITH WOODWARD'S *Vertebrate Palaeontology* (Cambridge University Press).

The Professor will be glad to advise students in their choice of books.

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## BOTANY.

- (1) *After Matriculation and before entering the University :*

FIELD BOTANY, with the aid of GROOM'S *Elementary Botany* (Bell and Sons), or HENSLOW'S *How to Study Wild Flowers* (Religious Tract Society).

## (2) At the end of First University Year :

FIELD BOTANY, using HOOKER'S *Students' Flora of the British Isles* (Macmillan). As a convenient book for the pocket, HAYWARD'S *Botanist's Pocket Book* (Bell and Sons).

COULTER'S *Plant Relations* (Appleton, New York).

*The Chicago Text-book of Botany* (American Book Co.).

*Text-book of Botany*, Strasburger, Noll, etc. (Macmillan and Co.).

N.B.—It is essential that students who propose to carry on their botanical studies beyond Course I should utilise their first Summer vacation for Field Botany. Satisfactory progress is impossible if limited to the short Summer Term of their second year.

## (3) At the end of Second University Year :

FIELD BOTANY, using HOOKER'S *Students' Flora of the British Isles* (Macmillan).

SACHS' *History of Botany* (Clarendon Press).

J. REYNOLDS GREEN'S *History of Botany*, 1860-1900.

BOWER'S *The Origin of a Land Flora* (Macmillan).

DARWIN AND MODERN SCIENCE (Camb. Univ. Press).

JOST'S *Plant Physiology*; and supplement.

## GEOLOGY.

## PRELIMINARY READING.

MILLS' *Realm of Nature* (Macmillan), or

HUXLEY'S *Physiography*, new edition by GREGORY.

LYELL'S *Principles of Geology*, 2 vols. (Murray).

## FIRST AND SECOND YEAR READING. All students.

GEIKIE'S *Text-book of Geology*, 2 vols. (Macmillan), or

JKES-BROWN'S *Stratigraphical Geology* (Stanford).

DWERRYHUSE'S *Geological and Topographical Maps and their Interpretation*.

## SECOND YEAR. Applied Geology.

GIBSON'S *Geology of Coal-mining* (Arnold).

THOMAS AND MACALLISTER'S *Geology of Ore Deposits* (Arnold).

WOODWARD'S *Geology of Water Supply* (Arnold).

HOWE'S *Building Stones* (Arnold).

PHILLIPS'S *Ore Deposits*.

**SECOND YEAR. Pure Geology.**

CHAMBERLIN AND SALISBURY'S *Geology*, 3 vols

JUKES-BROWN'S *Building of the British Isles* (Stanford)

SUESS's *Face of the Earth*, English edition, 4 vols. (Oxford Press).

HARKER'S *Natural History of Igneous Rocks* (Macmillan).

DE LAPPARENT'S *Traité de Géologie*, last edition.

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**FACULTY OF ARTS.**

The Vacation Reading in the Faculty of Arts will be found in the syllabus of the various subjects in that Faculty.

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## UNIVERSITY EXTENSION LECTURES.

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*Committee :*

PROFESSOR ALFRED HUGHES, M.A., Chairman.

THE PRINCIPAL.

THE VICE-PRINCIPAL.

PROFESSOR W. J. ASHLEY, Ph.D.

PROFESSOR C. R. BEAZLEY, D.Litt.

PROFESSOR A. BOSTOCK HILL, M.D.

MISS S. M. FRY, M.A.

PROFESSOR A. W. KIRKALDY, M.A.

PROFESSOR J. H. MUIRHEAD, M.A.

PROFESSOR E. DE SELINCOURT, M.A.

PROFESSOR T. TURNER, M.Sc.

PROFESSOR G. S. WEST, D.Sc.

DR. C. L. BOULENGER, M.A., *Secretary.*

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## REGULATIONS.

- i. AREA AND SUBJECTS.—Courses of Lectures on Literature, History, Economics, Law, Languages, Education, Physics, Chemistry, Zoology, Botany, Metallurgy, Mining, Geology, Art, Music, and Architecture, are available for evening delivery within a reasonable distance from Birmingham, *i.e.*, in centres from which return to Birmingham on the same night after the Lecture is possible. In some cases the Lecturer may be available for afternoon Lectures, or for evening Lectures at such a distance as to involve return next morning.

2. BUSINESS CONDITIONS.—In making arrangements for the provision of a course of Lectures the following conditions must be complied with :—

- (a) Arrangements can only be made with the duly authorised Secretary of a Local Committee, specially formed for this or some cognate purpose, or with the Executive of some Public Authority or Institution.
- (b) This Committee or Public Body must guarantee the Lecture Fee, together with the other expenses referred to hereafter.
- (c) A suitable Lecture Room must be provided, together with any appliances which may be needed for the illustration of the Lectures, other than those brought by the Lecturer ; e.g., blackboard, means for suspending diagrams, tables for apparatus, lantern, etc. ; and the expenses defrayed locally.

3. LECTURES.—A course usually consists of ten or twelve lectures, and can be delivered at any convenient time either before or after Christmas.

4. TEACHING METHOD.—Each lecture lasts for about an hour, and is preceded or followed by a class, which is open to all who have taken tickets for the Course. The method of the class is conversational. It is specially intended for the assistance of the more systematic students, bringing the Lecturer into personal relations with them, so that he may be able to clear away any difficulties they may have felt, to enter more fully into matters which appear to require amplification, or to advise them as to their further study. As a rule one or two questions for home answering are set at the close of each lecture, and bearing upon its subject. The answers will be examined by the lecturer, and discussed in the class. Up to a maximum number of twenty-five the reading of these home papers is included in the lecture fee ; above that

number a small fee is charged *per capita*. The lecturer can also be asked questions in writing, and will answer them in class.

5. SYLLABUS.—A syllabus of each course of lectures, showing the scope and method of treatment, will be issued prior to the commencement of the course, and the lecturer will indicate therein the books or portions of books which he considers it desirable that the students should read.

6. EXAMINATION.—Where desired, a written examination will be held at the conclusion of a course by a specially appointed examiner ; a pass-list will be issued, the names of those who have passed with special credit being duly distinguished ; and, for courses of not less than ten lectures, certificates will be awarded, on the combined results of the weekly papers and the final Examination. The examiner will also be prepared to adjudicate upon any prize which may be offered in connection with a course. The Committee of Senate of the University will be prepared to report upon or award any Scholarship or Exhibition which may be offered in connection with a course or system of courses.

7. COST.—The cost of a course of lectures is made up of the following items :—

- (a) A lecture fee, which includes travelling expenses, examination fee, and cost of syllabus, viz. :—  
For a course of six lectures, £26 5s., eight lectures, £32 10s. od., ten lectures, £40, twelve lectures, £45. Certain lecturers rank as "Junior Lecturers," and in their case the fee is subject to a reduction of one-fifth. For distances beyond a certain maximum, or when the lecturer is required to stay the night, and private hospitality is not provided, a small *pro rata* addition will be made to these fees. For courses longer than

twelve lectures, or for two immediately consecutive courses upon the same subject, special terms will be arranged. For conjoint courses a slightly higher fee is charged.

- (b) The cost of the carriage of any apparatus for illustrating the lectures, a small sum for the use of apparatus, and excess charges upon home papers, if any.
- (c) Local expenses, consisting of advertising, hire and lighting of hall, attendance, provision of lantern, etc.

The Secretary will be glad to confer with local secretaries as to proposed courses ; or, free of cost, to visit local centres for the purpose of advice or consultation, or for the arrangement of courses or systems of courses, with special application to local needs.

All communications should be addressed to—

The Secretary,  
Birmingham University Extension,  
THE UNIVERSITY,  
BIRMINGHAM.

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## THE WORKERS' EDUCATIONAL ASSOCIATION.

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The object of the Workers' Educational Association is to provide opportunities of higher education, more particularly in History, Economics, Literature, and Philosophy, to working men and women, who are unable to attend the University in the daytime.

This work is carried on by a Joint Committee.

The Committee now consists of the following members :

*Nominated by the University—*

SIR OLIVER LODGE, F.R.S. (*Chairman*).

THE RIGHT REV. HENRY RUSSELL WAKEFIELD, D.D.  
(*Bishop of Birmingham*).

PROFESSOR W. J. ASHLEY, Ph.D.

PROFESSOR A. W. KIRKALDY, M.A.

PROFESSOR J. H. MUIRHEAD, LL.D.

PROFESSOR E. de SELINCOURT, D.Litt.

J. W. HARVEY, M.A.

H. G. WOOD, M.A., *Treasurer*.

*Nominated by Working-class Organisations—*

G. B. SPRAY (Birmingham Trades Council).

COUNCILLOR T. MANSELL, J.P. (South Staffs. Miners' Federation).

C. SITCH (Chainmakers' Union).

J. MILLINGTON (Midland Co-operative Union).

H. M. JOINER (Midland Adult School Union).

J. CUTHBERTSON, J.P. (Midland District W.E.A.).

T. W. PRICE (Midland District W.E.A.).

MRS. ANDREWS (Midland Co-operative Women's Guilds).

*Joint Secretaries* : J. W. HARVEY, M.A., and  
T. W. PRICE.

Under the administration of the Committee there falls—

- (1) The conduct of Tutorial Classes at the University, in the outlying districts of Birmingham, and in neighbouring towns.
  - (2) The arrangement of Preparatory Classes at the University.
  - (3) The arrangement of short courses of lectures of a pioneer character in various districts of Birmingham.
  - (4) The arrangement of Lectures of a popular kind at the University on Wednesday evenings. These are open only to members of the Workers' Educational Association and societies affiliated to it.
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#### Lecturers Appointed by the University.

THE HON. GERARD COLLIER, M.A.  
L. H. GREEN. M.A.  
HERBERT HEATON, M.A  
GORDON HISLOP, M.A.  
H. W. LIDDLE, M.A.  
W. W. LEE, B.Sc.

Further information may be had from the Secretary of the W.E.A., Mr. T. W. Price, The University, Edmund Street.

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## FACULTY OF MEDICINE.

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There are two Sessions in the academical year, and students may commence their studies at the beginning of either, but are recommended to enter at the commencement of the Winter Session. A student can, however, enter at any time during the Sessions.

THE WINTER SESSION begins on the 6th of October, 1914, and terminates on the 27th of March, 1915.

(The Medical Faculty is closed for the Christmas Vacation from December 21st to January 11th, both dates inclusive).

THE SUMMER SESSION commences on the 27th of April, 1915, and terminates on the 26th of June, 1915.

The Dean's Office is open daily, and all information may be obtained there. The Dean attends during Term daily at 11 o'clock, and at other times by appointment. During vacations information may be obtained by letter.

**REGISTRATION.**—The Dean of the Medical Faculty will be present in the Dean's Office to confer with Parents or Guardians and to enrol Students for the Winter Session on Monday, October 5th, 1914, from 10 a.m. to 1 p.m., and at the same hours on Tuesday, the 6th of October. After October 6th, the Dean will register Students between the hours of 9-30 and 11-30 a.m. only. He may, however, be seen at other times by appointment.

Students are strongly urged to enrol with the Dean before the actual opening of each Session. In this way they save much time and are enabled at once to profit by continuous and uninterrupted attendance at Lectures.

The Registration of Students for the Summer Session will commence on Monday, the 26th April, 1915, from 10 a.m. to 1 p.m., and will be continued at the same hours on Tuesday, April 27th. After April 27th, the Dean will register Students between the hours of 12 and 1.

All Fees are payable in advance (*i.e.*, at the beginning of the Session on account of which they are due), at the Secretary's Office in the University. Cheques should be drawn in favour of Mr. Geo. H. Morley.

*All the courses, Scholarships, Degrees, and Diplomas in the University are open to students of both sexes.*

Students, on entrance, are required to produce a testimonial or such other evidence of good character as shall be satisfactory to the Dean, and to sign an engagement that they will conform to such regulations as have been or may be made for the maintenance of order in the University.

Students intending to take lodgings in Birmingham or the vicinity are requested to place themselves in communication with the Secretary.

## DEGREES IN MEDICINE AND SURGERY.

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The University confers the Degrees of Bachelor and Doctor of Medicine (M.B. and M.D.), and of Bachelor and Master of Surgery (Ch.B. and Ch.M.).

Before entering the Medical Faculty the student must have passed the Matriculation Examination of the University (see page 149) or some other examination recognised as equivalent to the Matriculation (see page 167).

### TIME.

The Course for the Bachelors' Degrees extends over five years from the date of entrance as a Medical Student.

### COST.

The total cost for the five years' curriculum including Examination and Hospital fees is £158 2s. 6d., payable in five annual instalments (see page 533).

The classes included in the Composition Fee of £85 qualify the student for the Degrees and Diplomas of all Universities and Licensing Bodies (see page 532).

### ABSTRACTS FROM IMPORTANT REGULATIONS.

Candidates for the above Degrees must have complied with the following Regulations :

1.—They must have passed (*a*) the Matriculation Examination of the University in Chemistry or Experimental Mechanics, English Language, Literature and History; Latin; Mathematics; and one other foreign language; or (*b*) some other examination recognised as equivalent to the Matriculation.

The Matriculation Examination is held in July and September in each year. The Regulations regarding it will be sent on application to the Registrar.

2.—Candidates must pursue the regular curriculum of study, and pass the prescribed examinations, subject to the regulations (see page 510).

3.—At the commencement of each Session, before attending any class, students must obtain a form from the Dean, which they must at once present to the Secretary, paying at the same time any fees which may be due. Students are, however, particularly requested to notice that the form which they obtain from the Dean must be lodged at once with the Secretary, whether any fees are payable at the same time or not. Until this is done no credit will be given for attendance upon any course.

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Facilities are afforded to students wishing to obtain the higher qualification of the Royal Colleges of Surgeons (F.R.C.S.) or a Degree in Science in addition to a Medical Degree (see page 522).

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## FACULTY OF MEDICINE.

## TIME TABLE FOR THE M.B., Ch.B. CURRICULUM

1914-1915

## FIRST YEAR.

SUBJECT.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
<b>WINTER SESSION.</b>						
*Chemistry Lectures ..	9.30	..	9.30	9.30	..	..
* „ Practical & Tutorial ..	2 to 5	..	2 to 5	..	..	..
*Physics Lectures ..	10.30 11.30 to 1.30	.. { .. ..	10.30	10.30	..	..
* „ Practical ..	{	..	..	..	..	..
Anatomy Lectures ..	..	9.30	..	..	10.30	..
„ Tutorial ..	..	..	..	..	11.30	..
„ Practical ..	..	..	2 to 5	..	2 to 5	2 to 5
Biology Lectures ..	..	..	12.30	..	..	12.30
„ Practical ..	..	{	10.30 to 12.30	..	..	.
<b>SUMMER SESSION.</b>						
*Chemistry Lectures ..	9.30	..	9.30	9.30	..	..
* „ Practical & Tutorial ..	2 to 5	2 to 5	..	2 to 5	..	{ 9.30 to 12.30
*Physics Lectures ..	10.30 11.30 to 1.30	.. { .. ..	10.30	10.30	..	..
* „ Practical ..	{	..	..	..	..	..
Biology Lectures ..	..	9.30	..	..	9.30	..
„ Practical ..	..	{ 10.30 to 1.0	..	{	10.30 to 1.0	..

\*This instruction is given at the University Buildings, Edgbaston.

## SECOND YEAR

SUBJECT.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
<b>WINTER SESSION.</b>						
Anatomy Lectures ..	12.0	12.0	12.0	12.0	..	..
" Tutorial ..	9.30	..	9.30	..	9.30	..
Embryology Lectures ..	..	3.0	..	..	..	..
Practical Anatomy ..	2 to 5	{ 2 to 3 4 to 5	2 to 5	2 to 5	2 to 5	..
Physiology Lectures ..	10.30	10.30	10.30	10.30	10.30	..
" Tutorial ..	..	9.30	..	9.30	..	..
" Experimental (Oct. to Dec.) ..	..	..	..	2 to 4	2 to 4	..
" Chemical .. (Jan. to Mar.) ..	..	..	..	2 to 4	2 to 4	..
General or Queen's Hospital ..	..	..	..	..	..	9.0
<b>SUMMER SESSION.</b>						
Anatomy Lectures ..	10.0	..	10.0	..	10.0	..
" Tutorial ..	..	9.0	9.0	..	9.0	..
" Practical ..	2 to 5	2 to 5	2 to 5	2 to 5	2 to 5	..
Physiology, Tutorial ..	9.0	..	..	9.0	..	..
" Practical Histology ..	11.0	11.0	11.0	11.0	11.0	..
General or Queen's Hospital ..	to 1.0	to 1.0	to 1.0	to 1.0	to 1.0	9.0

## THIRD YEAR.

SUBJECT.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
<b>WINTER SESSION.</b>						
General or Queen's Hospital ..	9.0	9.0	9.0	9.0	9.0	9.0
Surgery Lectures ..	..	4.0	4.0	..	4.0	..
General Pathology and Bacteriology Lectures ..	..	2.0	..	2.0	2.0	..
General Pathology and Bacteriology Practical ..	3.0	..	..	{ 3.0 to 5.0	..	..
Materia Medica Lectures (Jan. to March)	..	3.0	..	..	..	..
Practical Pharmacy with Tutorial (Jan. to Mar.) ..	..	..	3.0	..	..	..
<b>SUMMER SESSION.</b>						
General or Queen's Hospital ..	9.0	9.0	9.0	9.0	9.0	9.0
Practical Pathology and Bacteriology ..	2.0	..	..	..	{ 2.0 to 4.0	..
Materia Medica Lectures ..	..	..	..	2.0	..	..
Practical Pharmacy (with Tutorial) ..	..	..	..	{ 3.0 to 5.0	..	..

## FOURTH YEAR.

SUBJECT.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
<b>WINTER SESSION.</b>						
General or Queen's Hospital	9.0	9.0	9.0	9.0	9.0	9.0
Special Pathology Lectures	2.0	..	2.0	..	..	..
Medicine Lectures ..	..	3.0	3.0	..	3.0	..
Surgery Lectures ..	..	4.0	4.0	..	4.0	..
Public Health Lectures ..	3.0	..	..	..	..	..
Forensic Medicine and Toxicology Lectures }	..	..	..	3.0	..	..
Midwifery Lectures ..	4.0	..	..	4.0	..	..
Therapeutics and Pharmacology Lectures }	..	2.0	..	..	2.0	..
*Medicine—Tutorial ..	..	..	..	2.0	..	..
<b>SUMMER SESSION.</b>						
General or Queen's Hospital	9.0	9.0	9.0	9.0	9.0	9.0
Forensic Medicine and Toxicology Lectures }	3.0	..	..	3.0	..	..
Forensic Medicine and Toxicology, Practical }	4.0	..	..	4.0	..	..
Mental Diseases Lectures ..	..	2.0	..	2.0	..	..
*Medicine—Tutorial ..	2.0	..	..	..	2.0	..

## FIFTH YEAR.

SUBJECT.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
<b>WINTER SESSION.</b>						
General or Queen's Hospital	9.0	9.0	9.0	9.0	9.0	9.0
Medicine Lectures ..	..	3.0	3.0	..	3.0	..
Diseases of Women Lectures (Oct. to Dec.) }	..	4.0	..	..	4.0	..
Surg. & Med. Anat. Lectures (Oct. to Dec.) }	2.0	..	2.0	..	2.0	..
Ophthalmology Lectures (Jan. to Mar.) ..	2.0	..	2.0	..	..	..
Operative Surgery (Jan)	..	By Arrangement.				..
City Mental Hospital ..	..	..	..	..	..	10.0
Fever Hospital (Oct. to Dec. or Jan. to Mar.) }	..	..	..	..	..	11.30
Vaccination ..	..	By Arrangement.				..
Medicine—Tutorial ..	..	..	..	2.0	..	..
Surgery—Tutorial ..	4.0	..	..	4.0	..	..
Midwifery—Tutorial ..	..	2.0	..	3.0	..	..
<b>SUMMER SESSION.</b>						
General or Queen's Hospital	9.0	9.0	9.0	9.0	9.0	9.0
Surgery—Tutorial ..	4.0	..	..	4.0	..	..
Midwifery—Tutorial ..	5.0	..	..	..	..	..

All Students are requested to take notice that they must attend at least two-thirds of the lectures and practical classes of each course, and that the Schedules of those who do not observe this regulation will not be signed. They must attend the class examinations in Chemistry, Physics, and Biology, and are advised to attend also all other class examinations.

\*These classes are compulsory for Students in the Fourth Year.

## REGULATIONS FOR MEDICAL AND SURGICAL DEGREES.

The University confers the degrees of Bachelor and Doctor of Medicine (M.B. and M.D.) and of Bachelor and Master of Surgery (Ch.B. and Ch.M.). The course for the Bachelors' degrees extends over five years from the date of registration with the General Medical Council.

As a rule the first four of these years must be spent in the University, but the Senate has power of recognising attendance at another University as part of the attendance qualifying for these degrees and of recognising examinations passed at such other Universities as exempting from the examinations in Chemistry, Physics, and Elementary Biology. In the case of such students at least three years must be spent in attendance upon classes at the University. The fifth year may be spent at any other school or schools of medicine recognised by the University.

Candidates are allowed to enter for the First Professional M.B., Ch.B. Examination (Chemistry, Physics, and Biology) before commencing residence in the University, provided that they have already passed the Matriculation Examination or some Preliminary Examination accepted by the University in lieu of its Matriculation, such candidates to be eligible for the Final Examination for M.B., Ch.B., on producing evidence that they have been registered Medical Students by the General Medical Council for a period of five years.

*Candidates for the above degrees must have complied with the following regulations :—*

They must have passed (a) the Matriculation Examination of the University in Chemistry or Experimental Mechanics, English Literature and History; Latin; Mathematics; and one other foreign language; or (b) some other examination recognised as equivalent to the Matriculation.

A Matriculation Examination will be held on the 9th of September, 1914, and succeeding days, for the convenience of students desiring to commence their medical studies in October. Entries for this Examination must be sent to the Registrar of the University prior to August 5th.

The Matriculation Examination is held in July and September in each year, and the Regulations for the same will be sent on application to the Registrar.

*For the present* the University will recognise any one of the following examinations, in lieu of its own Matriculation, in the case of Medical students, provided always that such examination shall have included the subjects of English, Latin, Mathematics, Chemistry, or Experimental Mechanics or some other branch of Experimental Physics, and any one of the following : Greek, French, German, or any other modern foreign language ; and that all the subjects have been passed at one examination.

- (a) The previous Examination of the University of Cambridge, if it includes the "Additional Subjects."
- (b) Responsions of the University of Oxford, except in Mathematics.
- (c) The Preliminary or Matriculation Examination of a recognised University.
- (d) The Higher Certificate of the Oxford and Cambridge Examinations Board.
- (e) The Oxford or Cambridge Senior Local Examination.

Candidates must pursue the regular curriculum of study, and pass the prescribed examinations, subject to the following regulations :—

- (a) The Winter Session includes the Winter and Spring Terms, and the Summer Session corresponds with the Summer Term as set down in the Calendar.

- (b) At the end of each course of lectures or practical instruction, the student must obtain the signature of his teacher in the schedule book, which he will be required to lodge with the Registrar when entering his name for an examination.
- (c) This certificate must contain a statement that the student has attended to the satisfaction of the Professor, Lecturer, or Hospital Teacher not less than two-thirds of the lectures, practical classes, or clinical instruction, of which the course consists, together with such class examinations or other exercises as each teacher may prescribe in connection with his own course. In cases of illness, duly certified, the Dean has a discretionary power to relax the rule as to the attendance at two-thirds of the lectures.
- (d) For the subjects included in the First Medical Examination, Medical students must conform to the regulations of the Faculty of Science in the matter of class examinations and term work, and the marks given for terminal work will be dealt with by the Board of Examiners in the same manner as in the examinations of the Faculty of Science. In the subjects of all the subsequent Medical Examinations, Class Examinations will be held at the discretion of each Professor, but at least once in each Term, and students are strongly recommended to attend these. No particular standard of marks will be exacted, but the students' class and examination work may be submitted to the Examiners at the University Examination and taken into consideration by them.
- (e) The classes and examinations in the University must be taken out in the order and during the years specified in the Time Table, unless the student shall have received written permission from the Dean to vary the order of his study. In no case will students be permitted to enter

upon Hospital study, other than that set down for the second year, until the Second Examination shall have been passed.

- (f) In each Examination, except the First, Third, and Fourth, the student will be required to pass in *all* the subjects set down for that examination; failure in any one subject will entail the loss of the examination
- (g) The First, Second, Third, and Fourth Medical Examinations take place in the month of June in each year, but Supplementary Examinations for Referred Candidates at the First, Second, and Fourth Examinations may also be held in the month of September. The Supplementary Third Medical Examination will be held in December. Students are in general required to take the ordinary Examinations in June, but in cases of illness or in other special circumstances the Dean of the Faculty may at his discretion allow students to postpone their Examinations until September or December, as the case may be. Students who fail at the June Examination may be allowed, at the discretion of the Board of Examiners, to present themselves for re-examination in the following September or December. Students who pass in the practical examination in a subject at the June Examination may be excused the practical examination in such subject in the following September or December, at the discretion of the Board of Examiners. The Board of Examiners may require a candidate who has failed at an examination to attend during a second year courses of Practical or Theoretical Study or both, in the subjects or subject in which he has failed.
- (h) The Final Examination takes place in June and December in each year. In the case of failure in the final examination, the student will be re-

quired, before being re-admitted to examination, to produce a certificate as evidence of six months' further attendance on clinical work at some recognised hospital or hospitals.

*Note.*—Every candidate will be required to produce a certificate of having been registered as a medical student by the General Medical Council before admission to the Second Medical Examination.

## COURSE OF INSTRUCTION FOR DEGREES IN MEDICINE AND SURGERY.

### First Year.

**ANATOMY.**—One course of lectures during the Winter Session, with practical work extending over the same period.

**CHEMISTRY.**—One course of lectures and practical work during the Winter Session, with a second course, accompanied by practical work during the Summer Session.

*Note.*—Students are strongly recommended to study Elementary Chemistry before entering on this course.

**PHYSICS.**—One course of lectures, accompanied by practical work, extending over the Winter and Summer Sessions.

**ELEMENTARY BIOLOGY.**—A course of lectures during the Winter and Summer Sessions, with practical work extending over the same period.

At the end of the First Summer Session students will be eligible for the First Examination, viz., Chemistry, Physics, and Elementary Biology.

Students may present themselves for *all* or *any two* of these subjects. In either case the candidate must pass in two subjects in order to secure credit for any part of the Examination.

*Note.*—Students who have passed the Intermediate Examination for Degrees in Science in these subjects will be exempt from further examination in them.

### Second Year.

**ANATOMY.**—One course of lectures during the Winter Session, and one during the Summer Session, with practical work extending over the same period.

**Note.**—The certificate in Anatomy must show that the student has dissected the entire body at *least* once.

**PHYSIOLOGY.**—One course of lectures accompanied by practical work during the Winter Session, and a course of practical work during the Summer Session. Before commencing on this course students will be required to provide themselves with a microscope subject to the regulations on page 534.

**HOSPITAL.**—Attendance on special Surgical Tutorial Classes will be required on Saturday mornings during the Winter and Summer Sessions.

At the end of the Second Summer the student who has passed the First Examination and who has duly followed the above courses will be eligible for the Second Examination, viz., Anatomy and Physiology. Students must present themselves for both of these subjects, and a candidate must pass in the two subjects in order to secure credit for the Examination.

### Third Year.

**SURGERY.**—One course of lectures during the Winter Session.

**GENERAL PATHOLOGY.**—One course of lectures and practical work during the Winter Session, with a course of practical work during the Summer Session. Before attending this course the student will be required to add to his microscope the additional parts mentioned in the regulations on page 534.

**MATERIA MEDICA.**—One course of lectures with a practical course of instruction in Pharmacy during the Winter Session (January to March) and the Summer Session.

**HOSPITAL.**—The course of instruction as set down in the Regulations for Hospital Work must be followed (see page 605).

At the end of the Summer Session, the student who has passed the Second Examination and who has been

duly certified, may present himself for the Third Examination in General Pathology and Bacteriology and Materia Medica and Practical Pharmacy.

Candidates for this Examination are required to take the whole of the subjects—viz., General Pathology and Bacteriology, and Materia Medica and Pharmacy—together at one Examination. Candidates may pass in one group of subjects—viz., General Pathology and Bacteriology, or Materia Medica and Pharmacy—provided they obtain a reasonable standard of marks in the group in which they fail.

#### **Fourth Year.**

**SPECIAL PATHOLOGY.**—One course of lectures during the Winter Session.

**MEDICINE.**—One course of lectures during the Winter Session, and Tutorial Classes during Winter and Summer Sessions.

**SURGERY.**—One course of lectures during the Winter Session.

**HYGIENE AND PUBLIC HEALTH.**—One course of lectures during the Winter Session.

**MIDWIFERY.**—One course of lectures during the Winter Session.

**FORENSIC MEDICINE AND TOXICOLOGY.**—One course of lectures during the Winter and Summer Sessions accompanied by practical work in both subjects during the Summer Session.

**THERAPEUTICS AND PHARMACOLOGY.**—One course of lectures during the Winter Session.

**MENTAL DISEASES.**—One course of lectures during the Summer Session.

**HOSPITAL.**—The course of instruction as set down in the Regulations for Hospital Work must be followed (see page 605).

At the end of this year the student who has passed the Third Examination and who has been duly certified for the courses prescribed for the fourth year will be eligible to present himself for the Fourth Examination. Candidates for this Examination are required to present themselves in all four subjects, viz.:—(a) Forensic

Medicine and Toxicology ; (b) Public Health ; (c) Therapeutics ; and (d) Special Pathology. Candidates may pass in any *two* subjects, provided they attain a reasonable standard in the subjects in which they fail.

#### Fifth Year.

**MEDICINE.**—One course of lectures during the Winter Session.

**DISEASES OF WOMEN.**—One course of lectures during the first half of the Winter Session.

**SURGICAL AND MEDICAL ANATOMY.**—One course of lectures extending over three months during the Winter Session.

**OPERATIVE SURGERY.**—One course of practical instruction during the Winter Session.

**OPHTHALMOLOGY.**—One course of lectures during the Winter Session.

**HOSPITAL (GENERAL CLINICAL).**—The course of instruction as set down in the Regulations for Hospital Work must be followed (see page 605).

**FEVER HOSPITAL.**—A course of instruction extending over not less than three months.

**Note.**—The certificate must include a statement that the student has personally taken notes of not less than six cases of fever.

**MENTAL HOSPITAL PRACTICE.**—A course of instruction extending over not less than three months.

**Note.**—The student must present to the examiners at the time of examination at least four properly filled up certificates of lunacy drawn up by himself after personal examination of insane patients, and notes of two cases taken by himself, both to be certified by his teacher.

**VACCINATION.**—The student must follow the course laid down by the instructions of the Local Government Board (see page 616).

In addition to evidence that the above courses have been duly completed, the student will, on presenting himself for the Final Examination, be required to produce the following additional certificates :—

- (a) Of having attained his twenty-first year.
- (b) Of having during his third and fourth years performed the duties of clerk and dresser according to the rules laid down in the regulations for Hospital work.
- (c) Of having attended during at least twelve months the demonstrations given in the *post-mortem* room of a recognised Hospital, and of having acted for three months as *post-mortem* clerk.
- (d) Of having attended during three months the practice of an Obstetric Department or Hospital recognised by the University, or of having attended not less than twenty cases of labour, the first five at least of which shall have been conducted under the personal supervision of a registered practitioner, and of having continued such attendance throughout the puerperal period.

*Note.—All students commencing their Medical studies on or after October 1st, 1909, will be required to conform to the regulations, as defined below, for instruction in Practical Midwifery :—*

I. Every student before commencing the study of Practical Midwifery is required to have held the offices of Clinical Medical Clerk and Surgical Dresser at a recognised Hospital, and to have attended a course of lectures on Surgery and Midwifery in the University.

II. Every student is required *either*—

To have regularly attended the indoor practice of a Maternity Hospital (see page 613), recognised by the University, for a period of three months ; and, after having received therein practical instruction in the conduct of labour, under the personal supervision of a Medical Officer, to have

conducted twenty cases of Midwifery under official Medical supervision ; or *alternatively*,

To have conducted not less than twenty cases of labour, subject to the following conditions :—

That he has, during one month, given regular daily attendance upon the indoor practice of a recognised Maternity Hospital ; and that he has therein conducted cases of labour under the personal supervision of a Medical Officer of the Hospital, who shall, when satisfied with the student's competence, authorise him to conduct outdoor cases, under the supervision of a Medical Officer of a Hospital, Infirmary, Maternity Charity, or Dispensary approved by the University (see page 613).

*Note.—No certificate that the student has conducted the above-mentioned twenty cases of labour will be accepted, unless it is given by a member of the staff of a Hospital, Infirmary, Maternity Charity, or Dispensary recognised by the University.*

(e) Of having, during at least three months, received in either a General or Special Hospital, recognised by the University, Clinical instruction in the Diseases peculiar to women, and performed the duties of a Gynaecological Clerk for a period of three months.

*Note.—The student must present to the examiners, at the time of his examination, notes of at least six cases of this character taken by himself and certified as such by the teacher from whom he received his instruction.*

(f) Of having, during at least three months, received in either a General or Special Hospital, recognised by the University, Clinical instruction in Ophthalmology.

*Note.*—The Certificate must state that the student has received personal instruction in the detection and correction of errors of refraction.

- (g) Of having received practical instruction in the administration of Anæsthetics.

Students who have passed the Fourth Examination, on presenting the above Certificates, will be eligible to enter for the Final Examination in Medicine, Surgery, Midwifery, and Diseases of Women, Ophthalmology, and Mental Diseases.

On passing this Examination the student will be permitted to proceed to the Degrees of Bachelor of Medicine and Bachelor of Surgery.

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## DEGREES OF M.D. AND Ch.M.

At the end of one year from the date of having passed the Final M.B., Ch.B. Examination the candidate will be eligible to present himself for the higher degrees of either Doctor of Medicine or Master of Surgery or both.

Candidates for either of these Degrees will be required to comply with the following Regulations :—

### For the Degree of M.D.

Every candidate for this degree shall present a Thesis embodying observations in some subject embraced in one of the departments of the medical curriculum enumerated below, and in addition he will be required to pass a general examination in Principles and Practice of Medicine. It

will be in the power of the Board of Examiners to exempt a candidate whose Thesis is of exceptional merit from any part of these examinations.

*NOTE.—Theses, which must be either printed or type-written, should be lodged with the Registrar not later than May 3rd for the June Examination, or November 2nd for the December Examination. Two copies must be presented, one of which will be returned to the candidate.*

A Thesis may be presented in any of the following departments of study :—

- (a) Anatomy, including Comparative Anatomy.
- (b) Physiology.
- (c) Human or Comparative Pathology.
- (d) Bacteriology.
- (e) Pharmacology.
- (f) Therapeutics.
- (g) Medicine.
- (h) Mental Diseases.
- (i) Preventive Medicine or Public Health
- (j) Toxicology.
- (k) Legal Medicine.
- (l) Midwifery.

#### For the Degree of Ch.M.

Candidates are required to comply with the following Regulations :—

1. Every candidate shall present a Thesis embodying observations in some subject embraced in one of the departments of the medical curriculum enumerated below. In addition the candidates will be required to pass a general examination in Principles and Practice of Surgery, and to perform operations on the Cadaver.

NOTE.—*Theses, which must be either printed or type-written, should be lodged with the Registrar not later than May 3rd. Two copies must be presented, one of which will be returned to the Candidate.*

2. It will be in the power of the Board of Examiners to exempt a candidate whose Thesis is of exceptional merit from any part of these examinations.

3. The candidate may be examined in that department of the medical curriculum from which the subject of his Thesis is chosen, and the Examiners may require to see the notes of original observations on which the Thesis is based :—

- (a) Surgery.
- (b) Pathology.
- (c) Bacteriology.
- (d) Gynaecology.
- (e) Ophthalmology.

The fee for either of these Examinations is Ten Pounds.

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## COMBINED COURSE FOR SCIENCE AND MEDICAL DEGREES.

Students in the Faculty of Medicine, by devoting six years to study in the University instead of five years, may obtain a degree in Science (B.Sc.) in addition to their medical degrees. The course of study for the first year is that prescribed for the Intermediate Science Examination in Physics, Chemistry, and Biology. After passing the Intermediate Science Examination, students must during the following two years devote themselves entirely to the study of Anatomy (including Anthropology) and Physiology, taking one of these subjects as

a principal subject, and the other as a double subsidiary subject for the degree of Bachelor of Science. Candidates who have passed the degree examinations in these subjects will be excused the first and second Medical Examinations, and can enter on the final three years' curriculum for medical degrees.

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## ADMISSION OF GRADUATES OF OTHER UNIVERSITIES.

Graduates in Medicine of other Universities who have taken at least three years of their curriculum in the Birmingham Medical School are admitted to the Examination for the Degree of M.D. or Ch.M. on presenting evidence of having been engaged for at least one year in post-graduation study either in a laboratory of the University or in a hospital associated with the University and approved of by the Medical Faculty, or partly in both such places.

Graduates in Medicine of other Universities who are not past students of the Birmingham Medical School are admitted to the Examination for the Degree of M.D. or Ch.M. under the following regulations :—

- (1) They must possess a degree of a British or Colonial University recognised for registration by the General Medical Council and approved of by the Senate of the University.
- (2) They must have been engaged, to the satisfaction of the Faculty, in post-graduation study for a period of not less than two years either in research work in a laboratory of this University, or in special study whilst holding an appointment approved of by the Faculty in one or more of the Hospitals associated with the University.

## REGULATIONS FOR DEGREE AND DIPLOMA IN PUBLIC HEALTH.

### General Conditions.

1.—All candidates must be registered under the Medical Act.

2.—The Examinations will be held in the months of March and June, and will consist of two parts. No candidate will be allowed to pass Part II until he has passed Part I.

3.—Candidates may enter for Parts I and II separately or at the same time.

4.—The Examination in each part will be written, oral, and practical.

5.—Candidates intending to present themselves for either part of the Examination must give notice in writing to the Registrar of the University, on the date prescribed in the Calendar.

6.—The fee for each part of the Examination is £5.

### Conditions of Admission to the Examinations for the Diploma in Public Health.

Candidates registered under the Medical Act on or *before* the 1st of January, 1890, will be allowed to sit for examination on producing certificate of registration.

Candidates registered under the Medical Act *after* the 1st of January, 1890, must conform to the following regulations :—

*The curriculum for the Degree or Diploma in Public Health must extend over a period of not less than nine calendar months.*

Candidates will be admitted to examination in Part I on producing evidence of having received, after obtaining a registrable qualification, during six months, practical instruction in Hygienic Chemistry, Bacteriology, and the Pathology of the Diseases of Animals transmissible to Man.

*Candidates must produce evidence of having worked in the Laboratories for at least 120 hours in Practical Hygienic Chemistry, and at least 120 hours in Practical Bacteriology.*

NOTE.—Graduates in Medicine of the University of Birmingham, or past students who have taken out the whole of their curriculum in the Birmingham Medical School may attend the required instruction in Chemistry and Bacteriology either in this or in some other University, University College, or Medical School in Great Britain or Ireland. (Officers of R.A.M.C. and R.N., see page 527.)

Other candidates must attend the special courses of instruction in Chemistry and Bacteriology required for the Diploma in the Laboratories of the University of Birmingham.

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Candidates will be admitted to examination in Part II on producing evidence :—

EITHER (I) That, after obtaining a registrable qualification, they have, during six months, been diligently engaged in acquiring a practical knowledge of the duties, routine and special, of Public Health Administration, under the personal supervision of—

(a) In England and Wales, the Medical Officer of Health of a County or of a single or combined Sanitary District having a population of not less than 50,000, or a Medical Officer of Health devoting his whole time to Public Health work ; or

(b) In Scotland, a Medical Officer of Health of a County or Counties, or of one or more Sanitary Districts having a population of not less than 30,000 ; or

(c) In Ireland, a Medical Superintendent Officer of Health of a District or Districts having a population of not less than 30,000 ; or

(d) In the British Dominions outside the United Kingdom, a Medical Officer of Health of a Sanitary District having a population of not less than 30,000, who himself holds a registrable Diploma in Public Health ; or

(e) A Medical Officer of Health who is also a Teacher in the Department of Public Health of a recognised Medical School ; or

(f) A Sanitary Staff Officer of the Royal Army Medical Corps, having charge of an Army Corps, District, Command, or Division, recognised for this purpose by the General Medical Council ; or

(g) An Assistant Medical Officer of Health of a County, or of a single Sanitary District having a population of not less than 50,000, provided the Medical Officer of Health of the County or District in question permits the Assistant Officer to give the necessary instruction and issue certificates.

*Certificates under Section I must include testimony that the candidate has attended under the supervision of the person certifying on not less than 60 working days.*

OR (II), That he has himself held for a period of not less than three years an appointment as Medical Officer of Health of a Sanitary District within the British Dominions, and having a population of not less than 15,000.

NOTE.—The period during which the candidate has been engaged in acquiring practical knowledge of his duties under Section I may be reduced to three months, to include an attendance on at least 30 working days.

Provided that the candidate—

(i) Produces satisfactory evidence that he has attended a course or courses of instruction in sanitary law, vital statistics, epidemiology, school hygiene, and other subjects bearing on Public Health Administration, given by a Teacher or Teachers in the Department of Public Health of a recognised Medical School ; or

(ii) Produces evidence that he has been a resident Medical Officer in a Hospital for Infectious Diseases containing not less than 100 beds, during a period of three months.

Every candidate must also produce evidence that, after obtaining a registrable qualification, he has attended

at least twice weekly during three months the practice of a Hospital for Infectious Diseases recognised by the University at which he has received instruction in the Methods of Administration.

Methods of Administration shall include the methods of dealing with patients at their admission and discharge, as well as in the wards, and the Medical Superintendence of the Hospital generally.

In the case of a Medical Officer of the Royal Army Medical Corps, a certificate from a Principal Medical Officer under whom he has served, stating that he has during a period of at least three months been diligently engaged in acquiring a practical knowledge of Hospital Administration in relation to Infectious Diseases, may be accepted as evidence. I

Officers of the Royal Army Medical Corps who have studied Chemistry and Bacteriology at the Staff College, and pursued the further course of study approved by the General Medical Council in December, 1911, will be admitted to the Examination for the Diploma in Public Health, whether they have previously been students of the Birmingham School or not.

Medical Officers of the Royal Navy who have attended the courses of instruction in Hygienic Chemistry, Bacteriology, and Public Health, at the Naval Medical School, Greenwich, will be admitted to the Examination for the Diploma in Public Health, whether they have previously been students of the Birmingham School or not.

List of the Districts and Commands that have been recognised by the General Medical Council under Section I (f) :—

- Aldershot.
- Salisbury Plain.
- Southern and South-Eastern
- Western.
- Dublin and Belfast.
- Cork.
- Chatham and Woolwich.
- Home.
- Eastern.
- North-Eastern and North-Western.
- Scottish.
- Gibraltar Command.
- Malta Command.

The following Indian Divisions,  
viz. :—

- 1st (Peshawar).
- 2nd (Rawalpindi).
- 3rd (Lahore).
- 4th (Quetta).
- 5th (Mhow).
- 6th (Poona).
- 7th (Meerut).
- 8th (Lucknow).
- 9th (Secunderabad).
- Burma.

DEGREE IN PUBLIC HEALTH.—Graduates in Medicine of this University may become candidates for the degree of Bachelor of Science in Public Health, by conforming to all the requirements laid down for candidates for the Diploma in Public Health, and, in addition, they must have attended a three months' course of Geology in the University.

Past students of the Birmingham School of Medicine who have taken out their entire curriculum, or at least three years of the same therein, and have obtained a degree in Medicine in any British University are eligible for the Bachelorship in Science in Public Health on the same terms as graduates in Medicine of the University of Birmingham.

The Examination for the Degree is not the same as that for the Diploma, and a considerably higher standard of knowledge will be exacted at the former, which includes also a written examination in Geology.

The whole of the instruction, with the exception of Out-door Sanitary work, required for the Degree and Diploma in Public Health can be taken out in the University.

#### COURSES OF INSTRUCTION.

##### Sanitary Chemistry.

*Note.*—This instruction is given at the University Buildings, Edgbaston.

*B.Sc. or Diploma in Public Health.*—The Laboratory Course, which includes Oral Instruction, extends over six months (not less than six hours weekly. Times by arrangement). For Syllabus of Course see page 558.

##### Advanced Bacteriology.

This Class begins on Tuesday, October 13th, at 3.30 o'clock, and meets on Tuesdays, Wednesdays, and Fridays of each week until the end of March, each meeting occupying two hours. In addition, there are special meetings in sections according to arrangement. This Course qualifies

for the various Diplomas and Degrees in Public Health of this University and other bodies. It consists of lectures, demonstrations, laboratory instruction, and practical work in Bacteriology, especially in relation to disease, public health, its application to various industries, the disposal of sewage, etc. For Syllabus see page 569.

### Hygiene and Public Health.

In the latter half of the Winter Session, commencing in January, a Special Course of Lectures for candidates for Degrees and Diplomas in Public Health is given on Sanitary Engineering, Law, and Statistics, on Mondays at 3 p.m.

### Geology.

*B.Sc. in Public Health.*—The course in Geology is given in the Winter Session, the class commencing at the beginning of October, and meeting two hours weekly by arrangement.

### SYLLABUS OF THE COURSE.

#### I.—*Outlines of Geology.*

Prevailing types of rocks ; their physical characters, mineral and chemical composition and modes of origin.

Structures of rocks ; folds, faults, etc. ; representation in geological maps and sections and the interpretation and uses of these.

Arrangement of rocks : the rock formations of Britain, their structural arrangement and distribution, and their special characteristics.

#### II.—*Geology in relation to Sanitation and Water Supply.*

The disposal of rainfall overground and underground. Over-ground waters ; their natural actions and their use and storage : drainage, sanitation, water-supply, reservoirs.

Underground waters ; how they are contained in and flow through rocks ; dependence of this upon rock texture and structure ; composition of underground waters as affected by the texture, structure and composition of the rock through which they have passed ; water-supply from springs, wells, borings ; the water-bearing characters of the rock formations of Britain.

	FEES—			£	s.	d
Sanitary Chemistry	..	..	..	8	8	0
Bacteriology	..	..	..	5	5	0
Incidental Fee	..	..	..	3	3	0
Geology	..	..	..	2	2	0
Public Health Lectures	..	..	..	2	2	0

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## SYLLABUS FOR THE EXAMINATIONS.

### PART I.

- 1.—Physics in their application to Health, and with reference to Ventilation and Heating. Water Supply and Sewerage
- 2.—Chemistry in its relation to Air, Water, Food, Soil, and Sewage.
- 3.—Microscopical Examinations of Air, Water, Food, Articles of Clothing, Parasites, etc.
- 4.—Bacteriology in relation to Sanitary Work.

The Examination in Part I consists of *two* written papers, and a *viva voce*—in Public Health; a Practical in Bacteriology (which may include a *viva voce*); a Practical in Hygienic Chemistry (which may include a *viva voce*), and an Examination in Practical Microscopy.

### PART II.

- 1.—The Origin, Pathology, and Prevention of Disease; with special reference to Infectious Disease.
- 2.—Effects of Unwholesome Air, Water, and Food.
- 3.—Diseases of Animals in relation to the Health of Man.
- 4.—Influence of occupation.—Unhealthy Trades.
- 5.—Influence of climate.
- 6.—Sanitary Administration in relation to requirements of Houses and other buildings, Sanitary Engineering.
- 7.—Construction, Arrangement, and Management of Hospitals.
- 8.—Statistics in relation to Health.
- 9.—Sanitary Law, including Bye-Laws, Orders, and Regulations.
- 10.—Duties of Sanitary Officers.

The Examination in Part II consists of *two* written papers and a *viva voce* in Public Health, and a Practical and Oral Examination in Outdoor Sanitary Work. Candidates for the Degree of B.Sc. in Public Health will be examined also in Geology.

## UNIVERSITY FEES.

### MEDICAL FACULTY.

#### Membership Fees.

**Composition Students** on entering pay a Membership Fee of £5 5s which admits them to the University for five years. At the expiration of this period they may, at the discretion of the Dean, be called upon to pay the membership fees demanded from occasional students.

**Occasional or Class Students** are required to pay £1 11s. 6d. for each Academic Year during which they are in attendance at the University. The Membership Fee for three months' attendance is 12s. 6d.

#### Class Fees.

Students wishing to do so can pay for each class as they take it, the following table showing the fees for each course :—

	£	s.	d.
Anatomy Lectures (1st Winter)	..	..	6 6 0
Practical Anatomy (1st Winter)	..	..	5 5 0
Anatomy Lectures (2nd Winter)	..	..	6 6 0
Practical Anatomy (2nd Winter)	..	..	5 5 0
Anatomy and Practical Anatomy (one Summer)	..	..	3 3 0
Physiology	..	..	6 6 0
Physiology, Practical	..	..	4 4 0
Medicine	..	..	6 6 0
Surgery	..	..	6 6 0
Chemistry	..	..	4 4 0
Chemistry, Practical	..	..	3 3 0
Elementary Biology	..	..	5 5 0
Physics	..	..	5 5 0
Materia Medica and Pharmacy	..	..	2 2 0
Pathology	..	..	4 4 0
Pathology, Practical	..	..	4 4 0
Therapeutics	..	..	4 4 0
Forensic Medicine and Toxicology	..	..	4 4 0
Public Health	..	..	3 3 0
Operative Surgery	..	..	2 2 0
Lunacy and Mental Diseases	..	..	2 2 0
Ophthalmology	..	..	1 1 0
Applied Anatomy	..	..	1 1 0
Midwifery	..	..	4 4 0
Diseases of Women	..	..	2 2 0
	<hr/>	<hr/>	<hr/>
	£	101	17 0

**Note.**—Composition Students desiring to repeat any course will be required to pay a half fee for such course.

### Composition Fee.

The COMPOSITION FEE, £85, is inclusive and payable in one sum, or in two instalments of £42 10s. each at the commencement of the first and second years of studentship. This fee covers all the courses necessary for the Degrees of this and other Universities and the ordinary qualifications of the Licensing Boards. It does not include, however, courses for Public Health Diplomas, nor the additional courses required for the Fellowship of the Royal College of Surgeons, and other such higher diplomas and degrees. It is not a *perpetual* fee, and students allowing their courses to fall into arrear, without having previously obtained the written permission of the Dean to do so, are liable to the forfeiture of the unused portion of their Composition Fee.

### Incidental Fees.

Composition students taking courses for the first time are not required to pay these fees; any Composition Student desiring to repeat a practical course will have to pay the full incidental fee as well as the half-fee for attendance. Class Fee Students are required to pay the incidental fee as well as the class fee.

	£	S.	D.
Dissecting Room (each Winter)	..	..	1 11 6
Dissecting Room (each Summer)	..	..	0 15 9
Practical Physiology	..	..	2 2 0
Practical Pathology	..	..	1 11 6
Practical Pharmacy	..	..	0 10 6
Operative Surgery	..	..	0 10 6
Practical Forensic Medicine and Toxicology	..	..	0 10 6

*Note.*—All these sums are payable to the Secretary

### Total Cost.

For the convenience of those desiring to ascertain the total cost of obtaining the degrees of Bachelor of Medicine and Bachelor of Surgery, the following table has been drawn up. It presumes that the student enters by the Composition system and makes no allowance for failures

at examinations. No allowance is made either for the cost of books, instruments, etc., or for private tuition, should such be required.

		£ s. d.	£ s. d.
MATRICULATION	.. .. ..	2 0 0	<u>2 0 0</u>
FIRST YEAR :	Membership Fee ..	5 5 0	
	First Composition ..	42 10 0	
	First Examination ..	2 0 0	<u>49 15 0</u>
SECOND YEAR :	Second Composition ..	42 10 0	
	First Hospital Com- position .. ..	8 0 0	
	Second Examination ..	2 0 0	<u>52 10 0</u>
THIRD YEAR :	Second Hospital Com- position .. ..	12 0 0	
	Third Examination ..	2 0 0	<u>14 0 0</u>
FOURTH YEAR :	Third Hospital Com- position .. ..	12 0 0	
	Fourth Examination ..	2 0 0	<u>14 0 0</u>
FIFTH YEAR :	Fourth Hospital Com- position .. ..	10 0 0	
	Maternity Hospital ..	2 2 0	
	Vaccination .. ..	1 11 6	
	Fever Hospital .. ..	2 2 0	
	Mental Hospital .. ..	2 2 0	
	Final Examination ..	8 0 0	<u>25 17 6</u>
			<u>£158 2 6</u>

*Note.*—All fees (except those for Vaccination and Mental Hospital) are payable to the Secretary. Cheques should be drawn in favour of Mr. Geo. H. Morley.

#### Fees for Repeat Courses, etc.

	(3 months' courses.)	£ s. d.
*Anatomy .. .. ..	.. .. ..	2 7 3
Chemistry .. .. ..	.. .. ..	1 11 6
Physics .. .. ..	.. .. ..	1 11 6
Elementary Biology .. .. ..	.. .. ..	1 11 6
*Physiology .. .. ..	.. .. ..	2 2 0

\* Including Incidental Fee.

Special Fees.	£	s.	d.
Anatomy—Observation Fee (per term) ..	2	2	0
Anatomy—Primary F.R.C.S. .. ..	5	5	0
Physiology—Primary F.R.C.S. .. ..	6	6	0
*Physiology—for use of Laboratory for Research			
Work (3 months) .. ..	2	2	0
*Physiology—for F.R.C.S. (3 months) .. ..	3	3	0

*\* Including Incidental Fee.*

### Microscopes.

It is essential that every well-educated medical man should possess his own microscope. Students will, therefore, be required to provide themselves with a satisfactory instrument before attending the course of Practical Physiology. Before attending the Practical Course in Pathology they will be required to add a higher power lens and such other accessories as are necessary for the study of Bacteriology. Students can provide themselves with instruments, but in that case each instrument will have to be submitted to the Professor of Physiology, and its further accessories to the Professor of Pathology, and no student will be permitted to use in class an instrument which has not been approved by the Professor. The instrument recommended by the Faculty is the Delepine pattern microscope, manufactured by Messrs. Swift and Son. Students desiring to do so, can procure this instrument through the University by paying the sums set down below, in the Dean's Office. All students not already possessing a suitable instrument are advised to follow this course, since they will obtain a substantial reduction in price by so doing. The price of the microscope with the parts necessary for the Course of Practical Physiology will be £8, and this sum must be paid at the commencement of the second winter. The accessories necessary for the Course of Practical Pathology will cost in addition, £5, and this sum will have to be paid at the commencement of the third winter. These sums include the charge for engraving the student's name on the various parts of the instrument.

The Faculty also recommends microscopes made by the following firms:—Zeiss, Bausch and Lomb Optical Co., Leitz, Reichert, and Watson and Sons.

### Examination Fees.

The fees payable before a student is admitted to any of the examinations are set down below. Such fees cannot be returned, but candidates are allowed to repeat any examination upon payment of £1, except for the M.D., the Final M.B., Ch.B., and the Diploma in Public Health, the referred fees for which are as follows:—M.D., £5; Final M.B., Ch.B., £2; Diploma in Public Health, £3 for each part.

	£	s.	d.
Matriculation .. .. .. ..	2	0	0
First Examination .. .. .. ..	2	0	0
Second .. .. .. ..	2	0	0
Third .. .. .. ..	2	0	0
Fourth .. .. .. ..	2	0	0
Final .. for M.B., Ch.B. .. ..	8	0	0
M.D. or Ch.M. .. .. .. ..	10	0	0
Diploma in Public Health—			
For each part of the Examination .. .. ..	5	0	0
B.Sc. in Public Health—			
For each part of the Examination .. .. ..	5	0	0

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### REGULATIONS TO BE OBSERVED BY STUDENTS.

1.—Students on applying to enter any class are required to sign a declaration that they will observe the Ordinances of the University and conform to such regulations as have been or may be made for the maintenance of order in the University and in the classes they attend.

2.—Students who have passed the Matriculation examination or an examination accepted by the University as the equivalent of the Matriculation are eligible to become candidates for Degrees in the University. Such candidates are required to sign the Register of Matriculated

Students, and after registration become Undergraduates of the University. Undergraduates enjoy the status of Membership of the University and are entitled to the privileges of the Guild of Undergraduates. Undergraduates are required to wear academic dress at Examinations, at Ceremonies, when calling upon officers of the University and at the lectures of such Professors as do not definitely excuse their students from wearing it. Students who are not Undergraduates are not entitled to wear academic dress.

3.—Students are not permitted to be in the building before 8-45 a.m., nor after 7 p.m., unless attending classes or the meetings of some University Society.

4.—All students are required to conduct themselves in a quiet and orderly manner whilst in the building, not only during lecture hours, but on entering and leaving the building.

5.—Smoking is prohibited. Students are not permitted to loiter about in the corridors or front hall.

6.—Card playing is prohibited in any part of the University.

7.—Students committing any damage to the building, or property, will be required to pay for making good the same, and may be excluded from attendance at the University till payment is made.

8.—Students are required to attend punctually and regularly at the lectures and classes for which their names are entered.

9.—When students have been absent it is desirable that they should report the cause of their absence to the Dean on their return to the class. In the event of illness or unavoidable absence notice should be sent to the Dean as soon as convenient.

## ATTENDANCE AND SCHEDULES.

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I.—Before attending any class, students must obtain a form from the Dean, which they must *at once* present to the Secretary, paying at the same time any fees which may be due. Students are, however, particularly requested to notice that the form which they obtain from the Dean must be lodged at once with the Secretary, whether any fees are payable at the same time or not. Until this is done no credit will be given for attendance upon any course.

II.—Students, whether composition or occasional, who have taken out all the classes for which they have paid, must understand that they have no further *right* to use the University Class-rooms, Library, or the Club Rooms. But all Composition Students can obtain permission from the Dean to use the Museums and Library, etc. The Dean will issue cards to such students each Session, and the cards may be required to be produced at any time. It must be distinctly understood that such cards are held subject to the good conduct of the students, and that the Dean may at any time cancel any student's card.

Occasional students can receive similar cards on paying the terminal Membership Fee.

III.—Students must obtain the necessary signatures to their Schedules immediately after the conclusion of the several courses.

IV.—No Student's Schedule will be signed unless he shall have attended at least *two-thirds* of the lectures given in the course.

V.—Should any student desire to obtain credit for lectures from which he has been absent on account of illness, he must apply to the Dean, and lodge a medical certificate in the Dean's office on his return to work.

VI.—All students may be required to attend an Examination before their Schedules are signed for *any* Examination of *any* examining body.

VII.—Schedules for *all* Examinations must be left in the Dean's office *at least two days* before they are required. The student's name and address must be filled in in ink, and the date of attendance on the several courses of lectures filled in in pencil. Schedules will not be attended to unless the above rules are carried out.

VIII.—Schedules sent in during vacations may be much delayed. Students should, therefore, obtain all necessary signatures before the last day of each term.

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*Students and others desiring information on any subject connected with the Medical Curriculum can obtain the same by applying at the Dean's Office in the University Medical Buildings.*

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## SCHOLARSHIPS AND PRIZES.

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### SANDS-COX SCHOLARSHIP.

The Sands-Cox Scholarship, of the value of £42, is awarded annually to the candidate amongst those entering as students of the Faculty of Medicine in the month of October, who shall have obtained the highest marks at the Matriculation Examination in the previous month of July.

Provided that—

- (a) No candidate shall be elected whose age exceeds nineteen on the first day of the examination.
- (b) No candidate shall be elected who shall not have attained to a position in the first class, and satisfied the Examiners that he has shown sufficient merit for the award.
- (c) The payment shall be made in two annual instalments, and in the form of remission of fees.
- (d) The second instalment shall not be paid until the scholar presents a certificate from the Dean, showing that his first year's work has been satisfactory.

*Candidates desirous of competing for this Scholarship should notify the Registrar on entering for the Matriculation Examination.*

### SYDENHAM SCHOLARSHIPS.

1.—One or more Scholarships of the value of £42 each will be offered annually.

2.—The scholar or scholars will be elected by vote of the Council on the recommendation of the Faculty of Medicine.

3.—The Scholarships are limited to the orphan sons of legally qualified Medical men on entrance as first year students of the University.

4.—The orphan sons of former students of the Birmingham Medical School will have priority of election.

5.—No Sydenham Scholar will be elected whose age exceeds 23 years on the day of election.

6.—The Scholarship may be held for three years, subject to good behaviour ; and one-third of the Scholarship will be paid annually.

7.—Written application for a Sydenham Scholarship should be addressed to the Dean of the Medical Faculty on or before the 3rd of October in each year, and the candidate is required to furnish such evidence of eligibility as the Dean may consider necessary.

#### QUEEN'S SCHOLARSHIPS.

Queen's Scholarships of the value of £10 10s. each are allotted annually, on the recommendation of the Examiners, at the second, third, fourth, and final University Examinations respectively held in June.

In the second and fourth examinations the scholarship is awarded, respectively, to the student taking the first place and obtaining "*first-class*" marks.

In the Third Examination the Scholarship is awarded to the Student obtaining the highest first-class marks in Pathology and Bacteriology, provided that such student passes at the same examination in the subjects of *Materia Medica* and *Practical Pharmacy*.

In the Final Examination the Scholarship is awarded to the candidate taking the first place in the examination, that is, obtaining the greatest aggregate number of marks, provided that in each of the subjects of Medicine, Surgery and Midwifery he gains not less than 60 per cent. of the total available marks.

**INGLEBY SCHOLARSHIPS.**

Two Ingleby Scholarships, founded in memory of the late Dr. Ingleby, formerly Professor of Midwifery in the Queen's College, are offered annually to the candidates who obtain at the June Final Examination the highest marks in the subjects of Midwifery and Diseases of Women, provided that the candidates are placed in the "*First Class*" in the aforementioned subjects. The Scholarships are open to students who have completed two years of their curriculum in the Medical Faculty of the University.

**RUSSELL MEMORIAL PRIZE.**

This prize was founded by students of the Queen's College in memory of the late Dr. James Russell, formerly Honorary Physician to the General Hospital. It is a prize of books awarded annually to the student who, not being of more than six years' standing as a student of the School of Medicine of the University, shall pass the best examination in the subject of Nervous Diseases. Entries for this Examination must be sent to the Dean, in writing, on or before June 1st.

**THE WALTER MYERS TRAVELLING STUDENTSHIP.**

In memory of his son, Dr. Walter Myers, who died of yellow fever when making an investigation of that disease for the Liverpool School of Tropical Medicine, his father, Mr. George Myers, of Birmingham, has founded and endowed a travelling studentship in the University of Birmingham. Holders of this studentship, which will be awarded early in October in each year, must be under the age of thirty years, and must possess the degrees in medicine and surgery of the University of Birmingham. They must also possess the degree of B.Sc., which must have been obtained either at the University of Birmingham or London, or at either of the Universities of Oxford or Cambridge, should such degree be obtainable at either of those Universities. They must study for a year at one

of certain Universities in Germany, and any papers that they may publish must appear under the name of the Walter Myers Studentship. The studentship, which will be of the value of £150, will only be awarded should a candidate of sufficient promise present himself. The subjects in which the student may pursue investigations are Pathology or Clinical Medicine, combined with Pathological Research. The studentship may be prolonged over a second year, but at a diminished stipend. The Deed of Foundation of the studentship is printed on page 801, from which further particulars may be obtained.

Applications for this studentship must be sent in to the Dean of the Medical Faculty on or before September 1st.

#### GEORGE HENRY MARSHALL PRIZE.

The George Henry Marshall Prize in Ophthalmology of the value of £10 is awarded or expended from time to time in the form of grants towards the expenses of research, the publication of original papers, the purchase of apparatus or books, or in such other way as the Medical Faculty may consider best, any instrument, book, or other object so purchased being the property of the University.

Any past or present student of the Medical Faculty of the University or member of the staff of the Medical School, or of any affiliated Hospital, may apply for assistance of the kind above mentioned, provided the object in view be connected with research in Ophthalmology.

Applications must be made to the Dean of the Medical Faculty, in writing, on or before the 1st of October.

#### WILLIAM RICHARDS MEMORIAL PRIZE.

This prize, value £3 3s., which belongs to and is adjudicated upon by the University Medical Society, is awarded to the student member of the Society who shall send in the best paper during the year, such paper to be read at a meeting of the Society.

### ENTRANCE SCHOLARSHIP FOR DENTAL STUDENTS.

This Scholarship, of the value of £37 10s., is offered annually.

It is awarded to the student who, entering for the Dental Degree of the University in October, or having entered not earlier than the previous April, shall pass the best examination in the subjects studied during his apprenticeship.

Candidates must be under the age of twenty-one years.

Application for admission must be sent to the Dean on or before October 15th.

### CLINICAL PRIZES.

The University Clinical Board offer annually the following prizes :—

Senior Medical Prize	....	....	Gold Medal.
Senior Surgical Prize	....	....	Gold Medal.
Midwifery Prize	....	....	Gold Medal.
Junior Medical Prize	....	....	Silver Medal.
Junior Surgical Prize	....	....	Silver Medal.

The Examinations for the above Prizes will be held during the first week in May.

Regulations for these Prizes will be found on page 597.

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## THE LIBRARY.

*Librarian* : W. H. COPE.

The Library is open daily during the Session from 9 a.m. to 6 p.m., except on Saturdays, when it is closed at 1 p.m. It is closed at 5 p.m. during the vacations, and entirely closed during the month of August.

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## LOCKERS FOR BOOKS, etc.

Lockers are provided in the hat and coat room of the Medical Department, to enable students to preserve their books and papers in safety. Each student will be supplied with a key, upon which a deposit of two shillings and sixpence will be charged. The key must be delivered up on or before the last day of the Session for which payment has been made, or the deposit will be forfeited.

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## UNIVERSITY CLUB.

(Great Charles Street).

*President* : THE VICE-CHANCELLOR.

The accommodation consists of a reading and debating room, which can also be used for meetings, dances, and other social purposes; writing room, and dining room where meals and refreshments at popular prices are procurable throughout the day. There is also a games room and a billiard room fitted with two tables. A bath room, dressing rooms, and cycle accommodation are also provided.

Women students are provided with club rooms, including dining and tea rooms.

At the new buildings at Edgbaston a common room and dining room have been provided, and a separate reading room for women. All students are members of the club both at Edmund Street and at Edgbaston, by virtue of their membership fees.

All members of the University Court of Governors and Council, all Professors, Lecturers, and Demonstrators of the University, all present and past students of the University and Medical School, and all members of the Honorary and Resident Staffs of the Hospitals in connection with the University, are eligible as members. Entrance fee, half-a-guinea.

Annual subscription, £1 1s.

Full particulars as to membership, and copies of the rules, can be obtained from the Hon. Secretary.

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# FACULTY OF MEDICINE.

## Syllabuses of Courses.

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### ANATOMY.

*Professor* : PETER THOMPSON, M.D., Ch.B. (Vict.)

*Demonstrators* : 
$$\left\{ \begin{array}{l} \text{T. YEATES, M.B., C.M., B.Hy.} \\ \text{VIOLET A. P. COGHILL, M.B., Ch.B.} \\ \quad (\text{Edin.}) \\ \text{B. G. GOODWIN, F.R.C.S.} \end{array} \right.$$

*Hon. Demonstrators* : 
$$\left\{ \begin{array}{l} \text{W. E. BENNETT, M.B., Ch.B.,} \\ \quad \text{F.R.C.S.} \\ \text{SEYMOUR BARLING, M.S., Lond., F.R.C.S.} \end{array} \right.$$

*Special Lecturer in Osteology* :

THOMAS YEATES, M.B., C.M., B.Hy.

#### I.—Descriptive Anatomy.

The *First Year's Course* includes a general account of the main systems of the body and a more detailed description of the skeleton. The lectures are delivered during the Winter Session on Tuesdays at 9.30 a.m., and on Fridays at 10.30 a.m.

The *Second Year's Course* is partly given during the Winter, partly during the Summer Session. In the *Winter*, lectures are delivered at 12 o'clock on Mondays, Tuesdays, Wednesdays, and Thursdays, and in the *Summer* on Mondays, Wednesdays, and Fridays at 10 o'clock.

All these courses are accompanied by Demonstrations and Classes specially arranged to follow up the instruction given in the Lecture Theatre.

The Course of Lectures on *Human Embryology* is given during the Second Winter Session, on Tuesdays at 3 p.m.

## II.—Practical Anatomy.

The Dissecting Room is open during term time from 9 a.m. to 5 p.m., except on Saturdays, when it is closed at 1 p.m. One or more of the Staff of the Department is always in charge of the room and ready to help students finding themselves in any difficulty with their parts.

A separate Dissecting Room is available for Women Students in charge of Dr. Coghill.

Special instruction in Anatomy is given to Students reading for the Primary Fellowship. Fee : Five guineas.

NOTE.—All students, whether referred at examinations or otherwise, requiring further instruction in Anatomy must dissect unless excused by the Professor.

The Museum, which is open to all students, contains a large collection of specimens and models.

## III.—Medical and Surgical Anatomy.

A Course of Lectures and Demonstrations for students in their fifth year will be given on Applied Anatomy on Mondays, Wednesdays, and Fridays, from October to December inclusive, at 2 p.m.

## IV.—Anatomy for Dental Students.

The Human Anatomy part of the Dental curriculum includes two Summers' and one Winter's dissections, commencing in the first Summer, and two Summer Courses of Lectures. The Lectures in the first Summer are delivered at 2 p.m. on Mondays, Tuesdays, and Thursdays, and those in the second Summer on Mondays, Tuesdays, and Thursdays at 12 o'clock noon.

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### SYNOPSIS FOR DENTAL STUDENTS.

#### THE BONES.

The general anatomy of the osseous system, including the classification, the structure, development, and uses of bones. The axial and appendicular skeleton. A precise knowledge of the bones of the head and neck. Identification of all the bones (excluding carpus and tarsus).

**JOINTS.**

Classification of joints and examples illustrating each type.  
Temporo-mandibular joint. Joints of the spine; clavicle, shoulder, elbow and wrist.

**MUSCLE AND FASCIÆ.**

The naked-eye anatomy and classification of muscles. Modes of attachment. The general anatomy of the muscles of mastication, deglutition, and respiration. The fasciæ of the upper limb and of the head and neck.

**CIRCULATORY SYSTEM.**

The general anatomy and development of the heart, its structure, relations, and the arrangements of its cavities and valves. Pericardium. The anatomy of the principal arteries and veins of the body. The position, course, relations, and distribution of the vessels of the head and neck.

**THE LYMPHATICS**

The general principles underlying the lymphatic circulation. The lymphatic glands and vessels of the head and neck  
The thoracic duct.

**NERVOUS SYSTEM.**

The main divisions of the brain. Naked-eye anatomy of the spinal cord. Course, relations, and distribution of the cranial nerves. Mode of formation and distribution of a typical spinal nerve. The cervical and brachial plexuses. The sympathetic nervous system.

**ORGANS OF SPECIAL SENSE.**

The Eye—Structure of the eyeball, intrinsic and extrinsic muscles. The eye-lids, the lachrymal apparatus.

The Nose—The nasal fossæ. The accessory cavities of the nose. The nasal mucous membrane, including vascular and nervous supply.

The Ear.—An elementary knowledge of the external, middle, and internal ear. The Eustachian tube.

**THE FACE AND NECK.**

The triangles of the neck; their boundaries and contents, Lips, mouth, tongue, palate, tonsils, pharynx, œsophagus, and salivary glands. Larynx, trachea, the thyroid body. A brief sketch of the derivatives of the pharynx from the developmental point of view.

**THORACIC AND ABDOMINAL VISCERA**

Their structure, general arrangement, and relations.

## PHYSIOLOGY.

*Professor*: E. W. WACE CARLIER, M.Sc.; M.D. (Edin.), F.R.S.E.

*Lecturer*: GWYNNE MAITLAND, M.A., M.D., B.Sc., D.Phil.

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### I.—Systematic Physiology.

A Course of Lectures in Physiology will be delivered at 10.30 a.m. each day, except Saturday, throughout the Winter Session. It will consist of 100 lectures.

The Course will comprise—

- (1) General Chemistry of the Animal Body.
  - (2) Structure, Chemistry and Physiology of the Cell and of the Simple Tissues.
  - (3) Muscle and Nerve.
  - (4) General Nutrition, including circulation of the blood and lymph, respiration (voice and speech), alimentation, nutrition of the tissues, internal secretions, excretion and the minute structure of the organs concerned.
  - (5) Animal Heat, its production and regulation.
  - (6) Dietetics.
  - (7) Reproductive System.
  - (8) The Senses and Sense Organs.
  - (9) The Central Nervous System, its structure and functions.
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### II.—Physiology for Dental Students.

A Course of Lectures of a less advanced kind for Dental students will be delivered on Mondays, Wednesdays, and Fridays, at 12.15 o'clock throughout the Winter Session.

The Course will comprise:—

**1.—ELEMENTARY GENERAL CHEMISTRY OF ANIMAL BODY.**

Proteins, Fats, Carbohydrates, Salts.

**2.—HISTOLOGY.**

Minute structure of the tissues and organs of the body, with special reference to structures found in the mouth and adjacent parts, including salivary glands.

**3.—PRINCIPLES OF GENERAL NUTRITION.**

- (a) Blood.—Composition and uses. Coagulation. Arterial and venous blood. Chemistry and combinations of haemoglobin, blood gases.
- (b) Heart and Blood Vessels.—General plan of systemic, pulmonary, portal, renal, and cerebral circulations. Cardiac cycle. Control of heart and vessels by nervous system. Blood pressure. The pulse.
- (c) Lymph.—Composition Production. Function.
- (d) Respiration.—Mechanism of respiration. Control by nervous system Inner and outer respiration. Changes of blood and air. Interchange of gases. Dyspnœa and death by suffocation.
- (e) Alimentation.—Muscular and nervous mechanisms of mastication, deglutition, peristalsis, defæcation, and vomiting. Chemistry of simple foods: bread, meat, milk, fat. Saliva, and salivary digestion. Gastric juice and gastric digestion. Pancreatic and intestinal juices and intestinal digestion. Absorption from the alimentary canal and destination of absorbed materials.
- (f) Functions of Liver.—Glycogen. Bile.
- (g) Metabolism in general. Internal secretions.
- (h) Excretion by Kidney, Skin, Liver, Lungs. Urine.—Its composition and variation. Sources and meaning of its components.

**4.—ANIMAL HEAT.**

Maintenance and regulation of body heat. The normal temperature.

**5.—MUSCLE AND NERVE.**

Mode of action of contractile tissues and relation to nerves. Voluntary and involuntary muscular contraction. Tetanus. Rigor mortis. Nerve impulse. Measurement of its velocity.

**6.—ELEMENTARY PHYSIOLOGY OF CENTRAL NERVOUS SYSTEM AND OF THE SENSE ORGANS.**

**Eye.**—Component parts of eyeball. The eye as an optical instrument. Accommodation. Formation of image on retina. Vision.

**Ear.**—General structure. Mode of conduction of sound vibrations. Audition.

Taste and smell.

**Common Sensation.**—Touch, pain, heat, and cold, pressure and muscular sense.

**Brain, etc.**—General plan of cerebro-spinal and sympathetic systems. Arrangement of fibres and cells in central nervous system. Nerve centres and their uses. Action of various kinds of nerves. Reflex action.

**7.—EFFECTS OF ANÆSTHETICS UPON—**

Sensation, reflex action, heart, circulation, respiration, and excretion.

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**III.—Practical Physiology.**

The Course will extend over one Summer and one Winter Session.

**A.—HISTOLOGY.**—This Class will meet in the Physiological Laboratory every day, except Saturday, throughout the Summer Session from 11 to 1. Each student will have the use of a microtome and will be supplied with all reagents, but he will be expected to furnish himself with a microscope (see page 534), slides, cover-glasses, a razor, and other sundries.

Each student will prepare and study microscopical specimens of most of the tissues and organs of the body, and will receive practical instruction in the use of the microscope and in elementary technique.

**B.—EXPERIMENTAL PHYSIOLOGY.**—The Class will meet in the Physiological Laboratory on Thursday of each week from 2 to 4 during the first half of the Winter Session.

Each student will perform the simpler experiments, illustrating the physiology of muscle, nerve, heart and

reflex-action, and will receive practical instruction in the use of the sphygmograph, cardiograph, stethograph, laryngoscope, and ophthalmoscope.

The student must supply himself with a dissecting case. This course will be repeated on Fridays if necessary.

C.—PHYSIOLOGICAL CHEMISTRY.—This Class will meet in the Physiological Laboratory on Thursday of each week during the second half of the Winter Session from 2 to 4.

Each student will perform the qualitative and quantitative analyses of the urine in its normal and abnormal conditions with special reference to clinical work, with additional practical exercises on the chemistry of the proteins, carbohydrates, food stuffs, and their digestion, blood and bile. This course will be repeated on Fridays if necessary.

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#### IV.—Advanced Practical Physiology.

SEE FACULTY OF SCIENCE.

The Physiological Laboratory is open daily, except Saturday, during both Summer and Winter Sessions, from 10 a.m. to 5 p.m., for the prosecution of original research. Application to be made to the Professor.

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#### V.—Dental Histology.

A Combined Lecture and Practical Course on Dental Histology is held during the Summer Session. (For Syllabus see page 641.) Each student must provide himself with a suitable microscope. (See page 534.)

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A Course of Lectures on Elementary Physiology could be held during the Winter Session to meet the requirements of School Teachers and others, if desired.

## CHEMISTRY.

*Mason Professor :* PERCY F. FRANKLAND M.Sc.,; Ph.D. (Würzburg), B.Sc. (Lond.), LL.D. (St. And.), Sc.D. (Dub.), F.R.S.

*Assistant Lecturers :* { HAMILTON McCOMBIE, M.A. (Aber.), B.Sc. (Lond.), Ph.D. (Strasb.), A.R.C.S., A.I.C.  
C. K. TINKLER, D.Sc., B.Sc. (Lond. and Wales).  
J. E. COATES, M.Sc. (Wales).

*Assistant Lecturers and Demonstrators :* { EDWARD P. FRANKLAND, M.Sc., B.A. (Cantab.), Ph.D. (Wurz).  
(Vacant.)  
FREDERICK CHALLENGER, B.Sc. (Lond.), Ph.D. (Göttingen), F.I.C.

*Special Lecturer on Physical Chemistry :*  
J. E. COATES M.Sc.

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### Lecture Course on General Inorganic Chemistry.

The Lectures are delivered at 9.30 a.m. on Mondays, Wednesdays and Thursdays during the Winter Session.

Some of the above meetings of the class will be devoted to tutorial work. Attendance at the tutorial meetings of the class is compulsory, as is performance of the exercises set by the Professor.

In connection with this course a class dealing specially with the metallic elements will be held on Wednesdays, at 11.30 a.m., and a tutorial class at 2 p.m. on Mondays during both Sessions. Attendance at these classes is compulsory, unless the student has been exempted by the Professor. No fee.

### Lecture Course on Organic Chemistry.

The Lectures are delivered at 9.30 a.m. on Mondays, Wednesdays, and Thursdays, during the Summer Session.

Candidates for the First Medical Examination may be required to show knowledge of any of the subjects set forth in the following syllabus :—

### I.—GENERAL.

Nature of chemical change. Elements and compounds. Chemical affinity and the modes of chemical action. Regularities exhibited in the formation of compounds. Indestructibility of matter. Laws of constant, multiple, and equivalent proportions. Atomic theory. States of matter. Properties of Gases. Kinetic theory. Molecular theory. Avogardo's hypothesis. Atomic and molecular weights. Vapour density, isomorphism, atomic and molecular heats.

Chemical nomenclature, formulæ, equations. Valency.

Solution. Osmotic pressure. Electrolysis. Ionic theory. Acids, bases, and salts.

Thermo-chemistry. Energy, its transformation and conservation. Liquefaction of Gases.

### II.—SPECIAL.

Hydrogen. Oxygen. Ozone. Allotropy. Water; physical properties, natural waters. Hydrogen peroxide. Nitrogen; circulation of, in nature. The Atmosphere. Compounds of nitrogen with hydrogen; oxides of nitrogen; oxyacids of nitrogen; halogen compounds of nitrogen.

Carbon, its circulation in nature. Coal. Oxides of carbon. Hydro-carbons; methane, ethylene, acetylene. Combustion, flame, and luminosity.

Coal-gas, producer-gas, water-gas, oil-gas. Artificial illumination.

Chlorine and the halogens. Their compounds with hydrogen, their oxides, and oxyacids.

Sulphur; compounds with oxygen, hydrogen, and carbon; oxyacids of sulphur.

Phosphorus; compounds with hydrogen and oxygen; oxyacids of phosphorus. Arsenic, antimony, and bismuth; comparison of their properties and compounds with those of phosphorus and nitrogen.

Boron and silicon, and their more important compounds.

Classification of the Elements. Periodic law.

## METALS.

Occurrence, modes of isolation, and general properties of the following metals, and their more important compounds : Sodium, potassium, barium, strontium, calcium, magnesium, iron, chromium, aluminium, zinc, manganese, nickel, cobalt, mercury, copper, bismuth, cadmium, lead, tin, silver, and gold.

TEXT BOOKS.—Senter's, Kipping and Perkin's Inorganic Chemistry; Senter's Inorganic Chemistry; Holleman's Inorganic Chemistry.

## III.—ORGANIC CHEMISTRY.

Analysis of Organic compounds. Formulæ. Isomerism. Structure.

Hydro-carbons. Paraffins, Ethylene, Acetylene. Halogen derivatives. Chloroform. Iodoform.

Alcohols. Fermentation. Ether, Aldehydes. Chloral. Fatty Acids. Fats, Soaps, and Saponification. Glycerine. Glycol. Oxalic Acid. Succinic Acid. Tartaric acid. Lactic Acid. Citric Acid.

Carbohydrates.

Cyanogen-compounds and Amines.

Urea, Glycocol, Uric Acid.

Aromatic compounds, Benzene, Phenol, Aniline, Benzoic Acid, Salicylic Acid.

TEXT BOOKS.—Walker's Medical Organic Chemistry ; Remsen's Organic Chemistry.

## Practical Chemistry.

The Class meets at 2 p.m. on Mondays and Wednesdays during the Winter Session, and at 2 p.m. on Mondays, Tuesdays, and Thursdays, and at 9-30 a.m. on Saturdays, during the Summer Session.

The practical work in the Laboratory is intended to supplement the instruction given in the lectures, and to make the student personally familiar with the preparation of pure substances, and with the elements of qualitative and quantitative analysis.

### General Chemistry for Dental Students.

*Lectures* : Tuesdays and Thursdays, at 11-30 a.m., throughout the Winter Session.

*Laboratory* : Mondays, Tuesdays, and Thursdays, at 2 p.m. during the Winter Session.

### Synopsis of the Course.

#### INORGANIC CHEMISTRY.

##### General Elementary Principles of Chemistry :—

Simple substances. Mixtures. Chemical compounds. Laws of chemical combination. Atomic theory. Meaning and use of chemical symbols. Equations and simple calculations.

General characters of the chief types of inorganic matter, as illustrated by the following :—

Hydrogen and oxygen. Combustion. Oxidation and Reduction. Oxides, Acids. Bases. Salts. Ozone. Composition and properties of water. Nature of solutions. Osmotic pressure. Electrolysis. Rain, river, and spring water. Properties of hard and soft waters. Hydrogen peroxide.

Nitrogen.—The atmosphere. Methods of determining its composition. Ammonia and ammonium salts. Oxides of nitrogen. Nitric acid. General characters of nitrates and nitrites.

Carbon.—Allotropic forms. Carbon dioxide. Carbonates. Carbon monoxide. Carbon disulphide.

Halogens.—Chlorine. Hydrochloric acid. Hypochlorous acid. Sodium hypochlorite. Bleaching powder. Potassium chlorate. Bromine. Iodine. Hydrobromic and hydriodic acids.

Sulphur.—Allotropic forms Hydrogen sulphide. Sulphur dioxide and trioxide. Sulphurous and sulphuric acids. General characters of sulphates and sulphites. Sodium thiosulphate.

Phosphorus.—Allotropic forms. Phosphorus pentoxide. Orthophosphoric acid.

Borax and boric acid. Silica and silicic acid.

The metals with their compounds, as enumerated below, excluding metallurgical processes :—

Aluminium, antimony, arsenic, barium, bismuth, calcium, copper, iron, lead, magnesium, manganese, mercury, potassium, silver, sodium, tin, zinc.

The more important oxides, sulphides, and salts of these metals, with the acids already mentioned.

Potassium permanganate and potassium chromates.

### ORGANIC CHEMISTRY.

Ultimate organic analysis as regards carbon, hydrogen, and nitrogen. Determination of empirical formulæ and molecular weight. Homologous series. Isomerism.

The general character of the chief types of organic compounds, as illustrated by the following members of the various classes :—

Methane. Ethane. Ethylene.—Chloroform. Iodoform.—Methyl and ethyl alcohols. Ethyl ether.—Formic and acetic aldehydes.—Chloral.—Formic and acetic acids and their salts.—Ethyl acetate.—Acetamide. Cyanogen. Hydrocyanic acid. Cyanides.—Urea and its synthesis.—Lactic, oxalic, and tartaric acids. Oxalates and tartrates.—Glycerol —Fats and Saponification.

Benzene.—Phenol.—Benzoic aldehyde.—Benzoic and salicylic acids.

### PRACTICAL CHEMISTRY.

#### (a) QUALITATIVE ANALYSIS : INORGANIC AND ORGANIC.

The analysis of simple salts and of mixtures of two metals and one acid selected from substances included in the following lists :—

Metals.—Sodium, potassium, ammonium, calcium, barium, magnesium, zinc, iron, aluminium, copper, silver, lead, mercury, bismuth, tin, antimony, arsenic.

Acids.—Hydrochloric, hydrobromic, hydriodic, nitric, carbonic, sulphuric, phosphoric, acetic, oxalic, tartaric, and hydrocyanic acids.

## (b) SIMPLE VOLUMETRIC ANALYSIS.

The estimation of the strength of solutions of potassium or sodium hydrates by standard sulphuric acid, and of dilute hydrochloric or nitric acids by standard sodium hydrate.

The estimation of solutions of oxalic acid by standard potassium permanganate.

## (c) PREPARATIONS.

The preparation of the following compounds in a well-crystallised condition :—

Ammonium chloride. Lead iodide. Ammonium oxalate. Nitrates of potassium, barium, and lead. Copper sulphate. Ferrous sulphate. Lead acetate. Acid tartrate of potassium. Tartar emetic.

**Sanitary Chemistry.**

Laboratory Course, including Oral Instruction.

*B.Sc. or Diploma in Public Health.*—The Course extends over six months (not less than six hours weekly), and is given at the University, Edgbaston, at hours fixed by arrangement with the class.

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**Synopsis of the Course.****PRACTICAL INSTRUCTION :**

The use of the balance.

The methods of volumetric analysis, including the preparation of standard solutions, alkalimetry and acidimetry.

Kjeldhal's method for the determination of nitrogen.

The analysis of water, including the estimation of total solids (lime, magnesia, sulphates, chlorides, nitrates, and nitrites, ammonia, and poisonous metals); determination of temporary and permanent hardness, including the preparation of standard soap solution; organic impurities, acidity and alkalinity.

The detection of polluting gases

Estimation of the amount of carbon dioxide in air.

Simple methods of eudiometry.

Analysis of milk, butter, beer.

Acidity of vinegar.

Determination of Urea.

Estimation of cane and grape sugars.

Microscopic examination of starches, muscular fibre, and the fibres of wool, cotton, and silk.

#### ORAL INSTRUCTION :

Use of atomic and molecular weights.

Types of chemical change.

Physical and chemical properties as illustrated by hydrogen, oxygen, nitrogen, water, ammonia, nitric oxide, carbonic anhydride, nitric acid, sulphuric acid.

Acids and bases. The use of indicators.

Volumetric analysis. Gasometric analysis.

Chemical changes induced by micro-organisms and enzymes  
Fermentation, putrefaction, and nitrification.

Carbon compounds :—

Significance and use of constitutional formulæ.

Outlines of the nature and relations of the principal types of organic compounds :—

Hydrocarbons, alcohols, aldehydes, ketones, acids, esters, ethers, amines, amides.

Fats and carbohydrates.

Phenols and aromatic acids.

FEE : £8 8s.

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## PHYSICS.

*Mason Professor :* (Vacant).

*Lecturer :* G. A. SHAKESPEAR, D.Sc., M.A. (Cantab.), B.A., B.Sc. (Lond.).

*Assistant Lecturers :*  $\left\{ \begin{array}{l} \text{G. BARLOW, D.Sc. (Birm., Lond. and Wales).} \\ \text{H. B. KEENE, D.Sc. (Birm.).} \\ \text{J. S. ANDERSON, B.Sc., Ph.D.} \end{array} \right.$

*Special Lecturer on Experimental Physics :*

G. A. SHAKESPEAR, M.A., D.Sc.

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During the Winter and Summer Sessions the Lectures will be on Mondays, Wednesdays, and Thursdays at 10.30.

The Practical Class will be held in the Laboratory on Mondays, from 11.30 to 1.30 in both Sessions.

### Syllabus of Course.

#### MOTION AND FORCE.

Position. Velocity and Acceleration always relative to a standard. Effect of change of standard. Resolution and Composition of Velocities and Accelerations. Mass. Uniform motion in a circle. Conical Pendulum. Determination of g. Gravitation. Dimensions and Mass of the Earth.

#### PROPERTIES OF SOLIDS.

Sticking and sliding friction. Strains and stresses. Bulk strain and shear strain. Various kinds of permanent change of shape and rupture. Crystalline and amorphous solids.

#### PROPERTIES OF LIQUIDS.

Viscosity. Compressibility. Surface tension.

## PROPERTIES OF GASES.

Compressibility. Viscosity.

Kinetic theory of matter. Diffusion, solution, osmotic pressure.

## HEAT.

Temperature. Mercury in glass thermometer. Determinations of high and low temperature. Expansion of solids and liquids. Circulation and convection in liquids. Expansion of gases at constant pressure and increase of pressure at constant volume. Gas thermometers. Circulation and convection in gases. Movements of the atmosphere.

Quantity of heat. Specific heat and simple modes of measuring it.

Conduction of heat. Conductivity.

Heat a form of energy. The forms of energy and their transformations according to fixed rates of exchange. The conservation of energy. Joule's method of determining the mechanical equivalent of heat. The nature of heat on the kinetic theory of matter. Limitation in the amount of heat which can be transformed to work.

Change of state. Latent heat. Liquid-vapour change. Evaporation. Boiling vapour pressure. Dependence of boiling point on pressure and explanation. Modes of measuring vapour pressure. Explanation of vapour pressure on the kinetic theory. Water vapour in the atmosphere. Hygrometers. Cloud. Fog. Dew. Solid-liquid change. Melting points. Change of volume on melting. Effect of pressure on melting point. Regelation.

Radiation. High and low radiating and absorbing powers. Comparison of properties of radiation from hot bodies and properties of light. Identification. The spectrum. Substances absorb the radiations which they can emit. Dark lines in solar and stellar spectra.

## LIGHT.

Light a form of energy. Rectilinear propagation. Shadows. Eclipses. Inverse square law. Simple photometers. Reflection, refraction, and dispersion. Velocity of light.

Light a form of wave motion. Illustrations of interference. The diffraction grating. Polarisation of light.

Mirrors. Prisms, Lenses. The eye. Simple forms of telescope and microscope.

#### SOUND.

Sound arises from vibrating sources which send out longitudinal waves in air. Characteristics of the waves corresponding to loudness, pitch, and quality. Velocity of sound in air, and other media. Determinations of frequency. Resonance; its use to analyse sounds. Harmonics and upper partials. Quality.

Transverse vibrations of strings. Vibrations of air in pipes. Other vibrating sources.

Beats. Concord and discord. Combination tones.

#### MAGNETISM.

Properties of magnets. The two poles; their equality and inseparability. Magnetisation by induction. Methods of making magnets. Inverse square law. Magnetic fields and lines of force. The earth as a magnet. Declination, dip, and intensity.

#### ELECTRICITY.

The two kinds of electrification and simple modes of producing them. Conductors and insulators. The gold leaf electroscope. Electrification by induction. Frictional electrical machines. The electrophorus. The Wimshurst machine. The Leyden jar. Production and disappearance of the two electrifications always in equal quantities. The electric field, considered as the seat of electric strain, electric force, and electric energy. The inverse square law. Potential and capacity. Distribution on conductors.

#### ELECTRO-MAGNETISM.

Electric discharge and the magnetic effects accompanying it. Electro-magnetic waves. Electric current. Voltaic and storage cells. The magnetic properties of current circuits. The ampere. Galvanometers and ampermeters. Electric motors. Ohm's Law. Resistance. The heat developed in the circuit. Joule's Law. The ohm. The volt. Electrolysis. Electro-chemical equivalents. The induction of currents. Lenz's Law and Faraday's Law. The dynamo. The induction coil.

**\* Elementary Course on Experimental Physics.**

This Course is held during the Winter Session.

*Lectures*: Tuesdays and Thursdays, at 10.30 a.m.

*Laboratory*: Fridays, 10 a.m. and 2.30 p.m.

**Syllabus of the Course.**

**GENERAL PHYSICS.**

Units of length, mass, and time. Definitions of velocity, momentum, acceleration, force, and work. The laws of motion. Gravitation. Distinctions between solids, liquids, and gases. Simple Hydrostatics. Laws of pressure of moving fluids in closed tubes. Specific gravities. Atmospheric pressure. Barometers. Air and water pumps. Siphon. Boyle's Law. Diffusion. Osmotic pressure. Dialysis. Capillary phenomena. Friction.

**HEAT.**

Temperature and its measurement. Expansion of solids, liquids, and gases. Calorimetry. Specific heat. Heat of combustion. Change of state. Latent heat. Vapour-pressure, vapour-density, hygrometry. Conduction, convection, radiation. Relation between heat and work.

**LIGHT.**

Laws of reflection and refraction. Mirrors and lenses. Images Prismatic dispersion. The spectrum. Spectroscope. Microscope and telescope. Polarisation. Saccharimeter.

**SOUND.**

Production and propagation of sound. Wave-length, velocity, pitch, loudness.

**ELECTRICITY.**

Electrification by friction and induction. Electrophorus. Condensers. Magnetism Magnetic and heating effects of currents. Galvanometers. Electrolysis. Primary batteries. Accumulators. Measurement of electromotive force, current, and resistance. Ohm's Law. Induced currents. Induction coil. Vacuum tubes. Röntgen Rays.

\* L.D.S. Students attend this course.

## ELEMENTARY BIOLOGY

*Professor* : F. W. GAMBLE, M.Sc., D.Sc., F.Z.S., F.R.S.

*Lecturer* : HAROLD G. JACKSON, M.Sc. (Liverpool).

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A Course of about Fifty Lectures will be given during the Winter and Summer Sessions of the first year.

*Lecture Days*.—Tuesdays and Fridays at 12.30 during the Winter Session, and Tuesdays and Fridays at 9.30 in the Summer Session.

*Laboratory Days*.—Tuesdays from 10.30 to 12.30 in the Winter Session, and Tuesdays and Fridays from 10.30 to 1.0 in the Summer Session.

### SYLLABUS.

- A. The anatomy, physiology, and histology of the various systems of organs in the Frog. Structure of the various tissues of the Frog. Epithelial, glandular, connective, muscular, excretory, and nervous tissues. The combination of tissues to form organs. Living and non-living matter. Distinctive properties of living matter or protoplasm.
- B. This part of the course will treat of the structure and life histories of the following typical animals viewed from a comparative standpoint :—  
*Amœba, Paramecium, Vorticella*, the freshwater Polype (*Hydra*), *Obelia*, the Earthworm (*Lumbricus*), the Crayfish (*Astacus*), the Dog-fish (*Scyllium*), and the Rabbit (*Lepus*).
- C. The concluding lectures of the course will deal with the phenomena of cell division and of reproduction. Asexual and Sexual Reproduction. Ova and Spermatozoa. Spermato-genesis. Fertilization and Segmentation of the ovum in *Amphioxus* and *Rana*. The development and larval history of the Frog. The origin and fate of the three germinal layers and the chief organs to which they give rise.

## MEDICINE.

*Professor* : R. SAUNDBY, M.Sc. ; M.D. (Edin.), F.R.C.P., L. and I., LL.D.

*Professor* : OTTO J. KAUFFMANN, M.D., F.R.C.P. (Lond.)

*Assistant* : J. E. H. SAWYER, M.A., M.D., M.R.C.P.

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*Lecture Days*.—Tuesdays, Wednesdays, and Fridays, at 3 p.m.

This Course extends over two Winter Sessions, and includes—

1. An explanation of the nomenclature and classification of disease. The principles of etiology, symptomatology, diagnosis, prognosis, and treatment of disease in general.

2. A description of special diseases, together with their causation, prevention, diagnosis, prognosis and treatment.

Specific Infectious Diseases.

Diseases of the Nervous System, Functional and Organic ; of the Brain, Spinal Cord, and Peripheral Nerves.

Diseases of the Muscles.

Diseases of the Heart and of the Blood Vessels.

Diseases of the Respiratory System, Functional and Organic ; of the Larynx, Trachea, Lungs, and Pleural Sacs.

Diseases of the Digestive System.

Diseases of the Kidneys.

Constitutional Diseases.

The Intoxications, Sunstroke, Diseases of the Blood and Ductless Glands.

Diseases due to Animal Parasites.

Diseases of the Skin.

The Course will be illustrated by specimens from the Pathological Museum, and by drawings, diagrams, and charts.

Written Class Examinations are held during each term, and all students are advised to attend them. Regular tutorial instruction is given by Dr. Sawyer.

The Tutorial Classes (see Time Table) are compulsory for students in their Fourth Year, and optional for students in their Fifth and later years.

## SURGERY.

*Professor* : WILLIAM F. HASLAM, M.B., Ch.B., F.R.C.S.

*Professor* : CHARLES LEEDHAM-GREEN, M.B., Ch.M.,  
F.R.C.S.

*Assistant* : LEONARD P. GAMGEE, F.R.C.S.

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*Lecture Days*.—Tuesdays, Wednesdays, and Fridays,  
at 4 p.m.

This Course, extending over two Winter Sessions, is devoted to a systematic consideration of the Principles and Practice of Surgery. It includes a complete description of—

1. General Principles, as illustrated by Repair and its aberrations.  
Inflammation and its results.  
The various forms of blood poisoning.  
Tuberculosis. Syphilis.  
Tumour formations, etc.
2. The Surgery of Special Regions as far as possible.

The Assistant to the Chair of Surgery gives tutorial instruction to Senior Students, and holds preparatory classes for the Final Examination. Class Examinations are held during each term, and all Students are advised to attend them.

The Course will be illustrated by Specimens from the Pathological Museum, and by drawings, diagrams, and charts.

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## PATHOLOGY AND BACTERIOLOGY.

*Professor* : R. F. C. LEITH, M.Sc.; M.A., B.Sc., M.B.  
 (Edin.), F.R.C.P.E.

*Assistants* : { C. J. LEWIS, M.D., D.Sc. (Edin.), F.R.C.P.E.  
 W. J. LOGIE, M.D. (Glas.).  
 LAURENCE BALL, M.B., B.S., M.R.C.P.

*Special Lecturer in Bacteriology of Public Health* :

C. J. LEWIS, M.D.

*Lecturer in Pathology and Bacteriology* : W. J. LOGIE, M.D.

*Assistant Lecturer in Pathology and Bacteriology* :

LAURENCE BALL, M.B., B.S.

*Assistant Curators of the Pathological Museum* : { J. T. HEWETSON, Ch.M., M.D. (Edin.),  
 F.R.C.S.  
 (Vacant.)  
 A. W. NUTHALL, Ch.M., F.R.C.S.

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### A.—Ordinary Course for Medical Students.

This Course consists of three parts, viz., (1) a Systematic Course of Lectures on General Pathology and Bacteriology given in the Winter Session of the Third Year; (2) a Course of Lectures on Special Pathology given in the Winter Session of the Fourth Year; and (3) a Practical Course upon the same subjects given in the Winter and Summer Sessions of the Third Year.

**The Lecture Courses.**

The Lectures on General Pathology and Bacteriology commence on October 6th, and are given on Tuesdays, Thursdays and Fridays, at 2 o'clock. The Lectures on Special Pathology commence on October 12th, and are given on Mondays and Wednesdays, at 2 o'clock. They are fully illustrated by Macroscopic, Microscopic, and Lantern Preparations, and a Special Series of Demonstrations on Macroscopic Morbid Anatomy is also given weekly. The Lectures include :—

**I.—GENERAL PATHOLOGY AND BACTERIOLOGY.**

- (1) Altered conditions of the circulation.
- (2) Inflammation.
- (3) Retrogressive Disturbances of Nutrition.
- (4) Tumours.
- (5) Animal Parasites.
- (6) Pathogenic Bacteriology.

**2.—SPECIAL PATHOLOGY.**

The systematic study of the Etiology, Morbid Anatomy, and Histology of the diseases of the systems and organs of the body.

**(a)—The Winter Practical Course.**

This Course is intended to fit in with and illustrate as far as possible the subjects treated of in the Systematic Lectures. It will meet on Mondays and Thursdays, at 3, immediately after the lectures throughout the Winter Session, each meeting lasting two hours. Special attention will be given to Inflammation, Healing Processes, Tumours, Animal Parasites and Bacteriology.

**(b) The Summer Practical Course.**

The Summer part of this Class commences on Friday, April 30, at 2 o'clock, and meets on Monday and Friday of each week, each meeting occupying two hours. The

Histological and other Methods of practical pathological investigation are studied, and the various diseased organs and tissues are examined in detail, both macroscopically and microscopically by each student.

Each student is supplied with all the necessary reagents and apparatus, but students must provide themselves with a microscope (See Regulations, page 534.)

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### B.—Course of Advanced Bacteriology.

This Class begins on Tuesday, October 13th, at 3.30 o'clock, and meets on Tuesday, Wednesday, and Friday of each week until the end of March, each meeting occupying two hours. In addition there are special meetings in sections according to arrangement. This Course qualifies for the various Diplomas and Degrees in Public Health of this University and other bodies. It consists of lectures, demonstrations, laboratory instruction, and practical work in Bacteriology, especially in relation to disease, public health, its application to various industries, the disposal of sewage, etc.

It includes :—

- I. GENERAL.—Methods of Sterilisation. Preparation of Culture Media. Isolation and Cultivation of Germs. Methods of Examination, staining, etc., of Bacteria. The separation of their products, etc.
- II. SPECIAL.—The systematic study of the various pathogenic and the more important non-pathogenic bacteria in regard to cultural and morphological characters, methods of producing disease, antitoxin treatment and immunity. The examination of water, milk foods, etc. Antiseptics and sterilisation in detail, etc., etc.

FEE : Five Guineas.

*Members of this Course must provide their own microscopes (see page 534).*

INCIDENTAL FEE : Three Guineas. (Four Guineas if a University Microscope is used for the Course).

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### C—Course of Clinical Pathology and Bacteriology.

A Course suited to qualified medical men is given in the Summer Session, commencing on Thursday, April 29th. It meets twice or thrice weekly for about two months ; hours of meeting, 3.30 to 5.30, or by arrangement. It is devoted to the Pathological and Bacteriological methods of practical importance in the diagnosis of disease in hospital or private practice. It includes demonstrations and practical work in—

Histological methods for the examination of tumours, pieces of tissue and uterine scrapings.

The examination of the urine, chemically and microscopically.

The examination of the gastric contents, for free HCl, for disintegrated blood, etc.

The examination of the sputum.

The examination of fluids obtained by puncture of serous and other effusions, by lumbar puncture, by puncture of echinococcal and other cysts.

The examination of the blood.

A short consideration of those bacteria commonly met with in pathological processes in man, e.g., the Staphylococci and streptococci, the gonococcus, the pneumococcus, the typhoid bacillus and colon bacillus, the diphtheria bacillus and the tubercle bacillus.

Systematic explanations of these subjects, illustrated by lantern demonstrations, will also be given, in addition to the practical work of the Course.

FEE: £3 3s.

INCIDENTAL FEE: 15s.

*Members of this Course must provide their own microscopes (see page 534).*

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#### D.—General Pathology and Bacteriology for Dental Students.

This Course begins on October 6th, and is continued daily at 2 o'clock for about three and a half months. It consists of Lectures upon the Principles of General Pathology and upon the structure, classification, and function of micro-organisms, especially those relating to the mouth, gums, teeth, and throat.

*Practical Dental Bacteriology.*—This Course is held in January and February on Mondays and Thursdays from 3 to 5 p.m. It includes practical work in the general principles of Bacteriology, in a few of the chief pathogenic bacteria of the body and, in detail, the bacteria of the mouth and teeth.

*Members of this Course provide their own Microscopes.*  
(see page 534).

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The Pathological and Bacteriological Laboratory is open daily from 9 a.m. till 6 p.m. for the prosecution of private research, under the direction of Professor Leith and his assistants, to whom application should be made.

The Pathological Museum is open daily, from 9 a.m. till 6 p.m., under the direction of Professor Leith. Several type-written catalogues, containing descriptions and particulars of the specimens, are available for consultation.

## HYGIENE AND PUBLIC HEALTH.

*Professor:* A. BOSTOCK HILL, M.Sc.; M.D., D.P.H.  
 (Camb.), F.I.C.

*Assistant:* GEORGE A. AUDEN, M.A., M.D. (Camb.), D.P.H.

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*Lecture Day.*--Mondays, at 3 p.m., during the Winter Session.

This Course will include instruction in Hygiene as required for the ordinary Pass Examination, and will also be specially adapted to the requirements of candidates for degrees and diplomas in Public Health and State Medicine. The Lectures will be illustrated by experiments, diagrams and a complete set of models. In connection with the Department there is a collection of Sanitary Appliances open to all students attending this class.

The subjects treated will be as follows:—

Introductory, aim and scope of Hygiene, results already obtained.

Water supply—varieties of—quantity and quality of water. Diseases produced by bad water. Water Analysis.

Air and Ventilation, Impurities of Air, Standard of Purity, Heating and Lighting, Natural and Mechanical Ventilation, Appliances.

Food and Diet, Unwholesome Food, Adulteration of Food, Characteristics of good Meat, Fish, etc. Diseases of Animals in relation to the Health of Man.

The Soil in relation to Health.

The Dwelling and Sanitary appliances in connection therewith. Drainage and construction, Scavenging, Disposal of Sewage and Refuse.

Climate and Meteorology.

Infectious Diseases and Methods of Disinfection, Nature of Contagia, Immunity, Isolation, Quarantine, Vaccination. Statistics in relation to Health.

Offensive Trades.

In the latter half of the Winter Session, commencing in January, a Special Course for candidates for degrees and diplomas in Public Health is given on Sanitary Engineering, Law, and Statistics, on Mondays, at 3 p.m.

## THERAPEUTICS.

*Professor :* SIR ROBERT M. SIMON, Kt., M.D.: B.A., M.D. (Cantab.), F.R.C.P.

*Lecturer in Pharmacology and Assistant to the Chair :* W. A. POTTS, M.D.; M.A. (Cantab), M.D.; C.M. (Edin.)

*Lecture Days.*—Tuesdays and Fridays, at 2 p.m., during the Winter Session.

### SYLLABUS.

*A.—General Therapeutics.*

Rest, Exercise (Massage, etc.), Habits, Nursing, Heat, Cold, Personal Hygiene.

Diet.

The Use of Drugs in disease.

Natural Mineral Waters, their efficacy and its rationale.

Short descriptions of illustrative Bathing and Drinking Spas. Inhalation and Douching.

Climatology, Temperature, Humidity, Winds as they affect Climate. Continental, Marine, and Mountain Climates. Classification of the Chief Climatic resorts, with illustrative descriptions of a few types.

*B.—Pharmacology.*

An experimental course of twenty lectures.

*Books.*

Pharmacology : Dixon.

Diet : Hutchinson ; Walker Hall (Purin Bodies) ; Luff (Gout).

Mineral Waters and Spas : Hermann Weber.

Climatology : Huggard.

## MATERIA MEDICA AND PHARMACY.

*Lecturer :* J. COOLE KNEALE, M.B., Ch.B.; L.R.C.P. and S. (Edin.)

*Demonstrator :* F. R. GREENWOOD, M.B., Ch.B.; M.D., B.S. (Lond.), M.R.C.S.

*Lecture Days.*—Tuesdays, at 3 p.m., during the Winter Session (January to March), and Thursdays at 2 p.m. during the Summer Session.

Materia Medica comprises the subjects of Pharmacognosy and Pharmacy.

Instruction in Materia Medica is given in—

- (a) A Course of Lectures.
- (b) Practical Pharmacy Classes.
- (c) Tutorial Classes.

#### A.—Lectures on Materia Medica.

This Course includes the natural history, sensible and chemical properties, and modes of administering remedies, ordinarily so-called. Such remedies consist of—

- Inorganic Substances.
- Chemical Products.
- Vegetable Substances.
- Animal Substances.

#### B.—Practical Classes.

Practical instruction is given in the following subjects, which cannot be satisfactorily taught in lectures, on Wednesdays, at 3 p.m., during the Winter Session (January to March), and Thursdays, at 3 p.m., during the Summer Session.

- Pharmacy, or the processes for obtaining the Pharmaceutical preparations of drugs.
- Prescription writing.
- Dispensing, or the making up of medicines in forms suitable for administration in disease.

#### Tutorial Classes.

These will consist of a recapitulation of the Lectures and Practical Classes.

Students have access to the Materia Medica Museum, where facilities are afforded for the practical examination of specimens

The Museum contains (1) a collection of the official and officinal drugs, organic and inorganic ; (2) a collection of drugs from all sources for lecture purposes ; (3) a collection of the whole of the galenical preparations of the British Pharmacopœia : (4) a complete set of apparatus used in Pharmaceutical work.

## MIDWIFERY AND DISEASES OF WOMEN.

*Professor* : THOMAS WILSON, M.D. (Lond.), Ch.M.; F.R.C.S.

*Lecturer* : C. E. PURSLOW, M.D. (Lond.), M.R.C.P.

*Assistant* : JOHN T. HEWETSON, M.D., Ch.M.; F.R.C.S.

### Midwifery.

*Lecture Days*.—Mondays and Thursdays, at 4 p.m., during the Winter Session.

The Course comprises—The Physiological Anatomy of the pelvis and organs of generation in the female. The Physiology and development of the ovum and foetus. The Physiology of pregnancy—the changes effected by it; the diagnosis and the management of pregnancy. The Physiology and mechanism of labour. The conduct of normal labour. The Physiology and management of Child-bed. The new-born Child—Feeding, etc. Obstetric Surgery. The Pathology of pregnancy. The Pathology of labour. The Diseases of Child-bed.

### Diseases of Women.

*Lecture Days*.—Tuesdays and Fridays, at 4 o'clock, during the first half of the Winter Session, October to December.

#### SYLLABUS.

Physiology and pathology of the female organs of generation ; symptoms of disease ; methods of examination ; principles of treatment.

Malformations of the external and internal organs.

Diseases and injuries of the vulva and vagina.

Inflammations, displacements, and tumours of the uterus.

Cysts and tumours of the ovary, parovarium, and broad ligament.

Inflammation of the genital tract, especially as it affects the Fallopian tubes, ovaries, pelvic peritoneum and cellular tissue.

Newgrowths of the Fallopian tubes.

Hæmatocoele and extra-uterine pregnancy.

*Demonstrations*.—Throughout the Winter and Summer Sessions the Assistant holds classes for the instruction of students in Midwifery and Diseases of Women.

## FORENSIC MEDICINE AND TOXICOLOGY.

*Professor* : J. T. J. MORRISON, M.Sc. ; M.A., M.B., B.C.  
 (Cantab.), F.R.C.S.

*Assistant* : LEONARD G. PARSONS, M.D., M.R.C.P.

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*Lecture Days*.—Thursdays, at 3 p.m., during the Winter Session, and Mondays and Thursdays, at 3 p.m., in the Summer Session.

### Forensic Medicine.

The Course treats of the several branches of Legal Medicine necessary to the medical practitioner for his guidance in Medico-Legal Inquiries, and for giving evidence in civil and criminal causes in Courts of Justice.

### SYLLABUS.

Historical outline of the legal and social relations of the Medical profession in England. Rise of physicians, surgeons, and apothecaries, and their Corporations. The first Medical Act, 1511; the Apothecaries' Act, 1815; the Medical Acts of 1858 and 1886. General Medical Council. The Medical Register.

The scope of Forensic Medicine. Legal responsibilities and duties of medical men. The process of law before Coroner, Magistrate, and Judge. Medical evidence.

The signs of death. Determination of the date of death. The causes of death, and particularly of sudden death. The post-mortem as a medico-legal inquiry. Exhumation.

Identification of the living and of the dead. Determination of age, sex, stature, and personal peculiarities.

Death by violent or unnatural causes—drowning, hanging, strangulation, suffocation, and smothering; wounds and mechanical injuries; extremes of temperature; explosives; electric shock; lightning stroke; starvation. Indications of accident, suicide, or homicide.

Wounds and other personal injuries; question of accident or assault; compensation claims in such cases.

Offences against chastity; rape; unnatural offences.

Criminal abortion. Live birth. Infanticide.

Malapraxis and malingering.

Lunacy certificates.

Life Assurance.

The Lectures will be supplemented by a practical Course of Laboratory work on Mondays, at 4 p.m., during the Summer Session.

#### SYLLABUS.

Human Blood: its microscopical, chemical, and spectroscopic features. Special characters of the blood of other mammals, birds, fishes, and amphibians.

Discrimination of stains resembling blood; iron salts, vegetable colours, aniline dyes.

Seminal stains. Gonorrhœal pus.

Hair of man and domestic animals.

Fibres: cotton, linen, wool, silk.

Marks made by vitriol and other mineral acids.

Demonstration of the Fœtus at various ages.

Finger-prints and footmarks.

#### Toxicology.

This Course deals with poisons in their medico-legal, clinical, and pathological aspects. In the Lectures the following matters are discussed, viz. :—Laws relating to the sale of poisons; classification, modes of action, and lethal doses of poisons; antidotes—physical, chemical, physiological; medico-legal procedure in non-fatal and fatal poisoning; symptoms; treatment; detection and estimation of poisons; and post-mortem appearances in fatal cases.

The Lectures are supplemented by a practical course of Laboratory work on Thursdays, at 4 p.m. during the Summer Session.

#### SYLLABUS.

The identification of the following poisons:—

Sulphuric, nitric, hydrochloric, oxalic, and hydrocyanic acids.

Caustic potash, caustic soda and ammonia.

Silver, lead, mercury, copper, arsenic, antimony, tin, zinc, chromium and chromates, barium.

Alcohol, ether, chloroform, chloral, aniline, phenol, meconic acid, morphine, strychnine, cocaine, brucine, eserine, atropine.

## MENTAL DISEASES.

*Lecturer* : PERCY T. HUGHES, M.B., C.M. (Edin.), D.P.H. (Lond.).

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*Lecture Days*.—During the Summer Session, Tuesdays and Thursdays, at 2 p.m.

The Course will consist of an account of the various forms of Mental Disease, including their history, etiology, pathology, symptoms, and treatment. Illustrations of living examples, and pathological specimens will be utilised as far as possible. The medico-legal aspect of insanity will be included in the course.

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## OPERATIVE SURGERY.

*Lecturer* : GEORGE HEATON, M.A., M.B., B.Ch. (Oxon.) F.R.C.S.

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A Practical Class in Operative Surgery, consisting of at least ten demonstrations, is held in the latter half of each Winter Session.

At these Classes the members are given general instruction in Operative Surgery; and the chief operations in Surgery are performed—under the superintendence of the Lecturer—on the Cadaver, viz. :

Operations on Blood Vessels

„ „ Joints.

„ „ Nerves

Amputations.

Tenotomies.

Operations on the Head and Neck.

„ „ Thorax.

Abdominal Operations.

## OPHTHALMOLOGY.

*Lecturer* : J. JAMESON EVANS, M.D., F.R.C.S.

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*Lecture Days* :—Mondays and Wednesdays at 2 p.m., during the Winter Session (January to March).

These lectures deal systematically with the nature and treatment of the principal diseases of the eye. The several parts of the subject are taken in the following order :—

Disorders of the Eyelids and Conjunctiva.

Disorders of the Cornea.

Disorders of the Uveal Tract : Iritis, Cyclitis, Choroiditis.

Injuries and Sympathetic Ophthalmia.

Disorders of the Retina.

Disorders of the Optic Nerves, Tracts, and Centres,

Cataract.

Glaucoma.

Refraction. Hypermetropia. Myopia. Astigmatism. Acuteness of Vision. Accommodation. Presbyopia.

Strabismus and other disorders of the Motor Apparatus.

Disorders of the Orbit and Lacrymal Apparatus.

Eye Symptoms in Systemic Diseases.

Clinical demonstrations and practical instruction in the methods of examining the eye are given in the Eye Departments of the General Hospital, the Queen's Hospital, and the Birmingham and Midland Eye Hospital.

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# BIRMINGHAM UNIVERSITY CLINICAL BOARD.

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## INFORMATION CONCERNING HOSPITAL WORK.

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### THE GENERAL AND QUEEN'S HOSPITALS, BIRMINGHAM.

The Practices of these Hospitals are amalgamated for the purpose of Clinical Instruction which is carried on under the direction of the University Clinical Board. They present an almost unrivalled field for Clinical work, possessing more than **500 Beds**, treating annually upwards of **8,000 in-patients**, and **100,000 out-patients**, and as students spend part of their curriculum in each Hospital, they have every opportunity of acquiring a varied, full, and practical knowledge of their professional work.

The curriculum is adapted in the first place to meet the needs of the students of the Birmingham University, but it is also well adapted to the requirements of students preparing for the examinations of all other Universities and Licensing Bodies.

The advantages that the combined Hospitals offer to students do not cease with graduation, for there is probably no city in which students who have qualified have a larger number of Resident posts open to them.

**At the GENERAL HOSPITAL there are—**

**A RESIDENT MEDICAL OFFICER**, who is elected annually, and has a salary of £100 a year.

**A RESIDENT SURGICAL OFFICER**, who is elected annually, but is eligible for re-election for three years, at a salary of £100 a year.

A RESIDENT PATHOLOGIST, who is elected for a period of six months, and has a salary at the rate of £50 a year.

Three SURGICAL CASUALTY OFFICERS, who are elected for twelve months, and are eligible for re-election for a further similar period, at a salary of £50 a year.

Three HOUSE PHYSICIANS, who hold office for six months, are provided with board and residence, and have salaries at the rate of £50 a year.

Four HOUSE SURGEONS, who hold office for nine months, are provided with board and residence, and have salaries at the rate of £50 a year.

One HOUSE SURGEON to the Gynæcological, and one to the Ophthalmic, Aural and Skin Departments, each of whom holds office for six months, is provided with board and residence, and has a salary of £50 a year.

A RESIDENT MEDICAL OFFICER at the Jaffray Hospital, who is elected annually, but is eligible for re-election, and who receives £150 a year.

A RESIDENT MEDICAL ASSISTANT at the Jaffray Hospital, who is not necessarily qualified. He is provided with board and residence, and holds office for three months.

At the QUEEN'S HOSPITAL there are—

Three House Physicians, who hold office for six months, and have salaries at the rate of £80 a year.

Three House Surgeons, who hold office for six months, and have salaries at the rate of £80 a year.

One Obstetric and Ophthalmic House Surgeon, who holds office for six months. Salary at the rate of £80 a year.

One Resident Dresser (post vacant on the first day of January, April, July, and October), who holds office for three months, and receives £5 5s. on completion of duties. Candidates for this appointment need not be qualified.

At the CHILDREN'S HOSPITAL.

- One Resident Medical Officer.
- One Resident Surgical Officer.

At the CITY WORKHOUSE AND WORKHOUSE INFIRMARY

- Five Resident Medical Officers.

At the BIRMINGHAM GENERAL and BRANCH DISPENSARIES.

- Twelve Resident Surgeons.

At the BIRMINGHAM LUNATIC ASYLUMS.

- Five Assistant Medical Officers.

At the CITY FEVER HOSPITALS.

- Three Assistant Medical Officers.

At the BIRMINGHAM AND MIDLAND EYE HOSPITAL.

- Three Resident Surgeons.

At the ORTHOPÆDIC AND SPINAL HOSPITAL.

- Two Clinical Assistants (non-resident).

At the EAR AND THROAT HOSPITAL.

- One House Surgeon, with a salary at the rate of £70 per annum.
- Four Clinical Assistants (non-resident).

At the MATERNITY HOSPITAL.

- One House Surgeon, with a salary at the rate of £50 per annum.
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Besides the above-mentioned positions in Institutions in the City of Birmingham, there are numerous resident salaried appointments in the Hospitals in the immediate vicinity which are open to the students of the Birmingham Medical School.

Appointments are also open to Graduates in the Naval, Military, Indian Medical and Colonial Services.

## HOSPITAL FEES.

THE COMPOSITION FEE for attendance for the full period required by the various examining bodies on the Medical and Surgical Practice and on the Clinical Lectures at both Hospitals is .... £42

N.B.—This payment can be made in four instalments of £8, £12, £12, and £10 each—the first on entrance at Hospital, the second at the commencement of the second year, the third at the commencement of the third year, and the fourth at the commencement of the fourth year at Hospital.

### OCCASIONAL FEES FOR BOTH MEDICAL AND SURGICAL PRACTICE.

One Year's Attendance	....	....	£22 10s.
Six Months'	,,	....	£14
Three Months'	,,	....	£10

### OCCASIONAL FEES FOR EITHER MEDICAL OR SURGICAL PRACTICE.

One Year's Attendance	....	....	£11 11s.
Six Months'	..	....	£7
Three Months'	..	....	£5
One Month's	,,	....	£3 3s.

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All Hospital fees must be paid at the time of registration to the Secretary of the University.

All schedules for Clinical work are signed by the Chairman of the Clinical Board, after being initialled by the Clerk to the Board.

## REGISTRATION OF HOSPITAL STUDENTS.

Students must register with the Secretaries of the University Clinical Board at the commencement of their second year, and of every succeeding year. Due notice will be given at the University and at the Hospitals of the days and hours of registration. Fees must be paid at the time of registration.

Students are, on first entering for their Hospital work, allocated in equal numbers to the General and the Queen's Hospitals respectively.

A student remains for one year at one Hospital, and in the next year passes to the other Hospital, and so on until his fifth year, when he may attend whatever classes he chooses at either Hospital, subject to the Regulations.

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## REGULATIONS FOR HOSPITAL WORK.

During the First Year there is no Hospital Work.

### SECOND YEAR.

Students must attend Hospital on Saturday mornings, when Surgical Tutorial Classes will be held and instruction given in Clinical Surgery.

### THIRD YEAR.

Out-Patient dressing, three months.

In-Patient dressing, six months.

Clinical Lectures on Surgery.

Medical and Surgical Clinical Classes.

Medical Tutorial Classes (three months' attendance will be required upon these before In-Patient dressing is commenced.)

**FOURTH YEAR.**

In-Patient clerking, six months.  
Clinical Lectures on Medicine.  
Medical and Surgical Clinical Classes.  
Post-mortem clerking, three months. Attendance at post-mortem examinations and demonstrations during the year.

**FIFTH YEAR.**

Clinical instruction in Medicine and Surgery.  
Maternity Hospital, one month.  
Clinical Midwifery (twenty cases).  
Gynæcological clerking, three months.  
Ophthalmology, three months.  
Vaccination, six weeks.  
Course in Anæsthetics. Attendance on three Lectures and the administration of Anæsthetics in twenty cases.  
Fever Hospital, three months.  
Hospital for Mental Diseases, three months.

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## THE GENERAL HOSPITAL.

The Hospital contains 342 beds, and of these 327 are in daily use, upwards of 5,500 in-patients passing through the wards in the course of a year.

There are special wards for children, for gynaecological cases, and for septic and infectious cases, and in addition special beds reserved for eye and ear cases.

The out-patient hall has accommodation for some 500 or 600 patients, and some 62,500 out-patients are treated there annually.

The Post-mortem Department is in a separate building. It consists of a Mortuary with a small viewing room, a Post-mortem Room proper, and Laboratories for Bacteriology and Morbid Histology. In addition there are separate rooms in the main building, adjoining the various Medical and Surgical Wards for Clinical Pathology, and these are under the direction of special officers.

There are four operating theatres, all designed and fitted on the most modern lines.

In connection with the Hospital is the Jaffray Suburban Hospital at Gravelly Hill. To this Institution, which contains 56 beds, the chronic cases are transferred, when fit to be moved. This allows the main Hospital to be kept full of acute cases.

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## THE GENERAL HOSPITAL STAFF.

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**Consulting Physicians :**

ROBERT SAUNDBY, M.D., LL.D., M.Sc., F.R.C.P.  
SIR ROBERT M. SIMON, Knt., M.D., F.R.C.P.

**Consulting Obstetric Officer :**

EDWARD MALINS, M.D., F.R.C.P.

**Consulting Ophthalmic Surgeon :**

D. C. LLOYD-OWEN, M.D., F.R.C.S.I.

**Physicians :**

T. STACEY WILSON, M.D., F.R.C.P.

T. SYDNEY SHORT, M.D., M.R.C.P.

JAMES W. RUSSELL, M.A., M.D., F.R.C.P.

A. STANLEY BARNES, M.D., F.R.C.P.

**Surgeons :**

GILBERT BARLING, M.B., B.S., F.R.C.S.

WILLIAM F. HASLAM, M.B., Ch.B., F.R.C.S.

GEORGE HEATON, M.A., M.B., B.Ch., F.R.C.S.

ALBERT LUCAS, F.R.C.S.

**Obstetric Officer :**

THOMAS WILSON, Ch.M., M.D., F.R.C.S.

**Ophthalmic Surgeon :**

R. D. BEATSON HIRD, M.D., F.R.C.S. (Ed.)

**Aural Surgeon and Laryngologist :**

F. W. FOXCROFT, M.D., C.M.

**Physician in Charge of Skin Department:**

A. DOUGLAS HEATH, M.D., M.R.C.P.

**Assistant Physicians :**

WILLIAM H. WYNN, M.D., M.R.C.P.

J. E. H. SAWYER, M.D., M.R.C.P.

LEONARD G. PARSONS, M.D., M.R.C.P.

K. D. WILKINSON, M.D., M.R.C.P.

**Assistant Surgeons :**

LEONARD P. GAMGEE, F.R.C.S.

FRANK BARNES, M.B., M.S., F.R.C.S.

SEYMOUR BARLING, M.B., M.S., F.R.C.S.

E. MUSGRAVE WOODMAN, M.B., M.S., F.R.C.S.

**Assistant Obstetric Officer :**

H. BECKWITH WHITEHOUSE, M.S., F.R.C.S.

**Visiting Pathologist :**

W. J. LOGIE, M.D.

**Clinical Pathologists :**

LEONARD G. PARSONS, M.D., M.R.C.P. SEYMOUR BARLING, M.S., F.R.C.S.

**Anæsthetists :**

SYDNEY HAYNES, M.D. W. J. McCARDIE, B.A., M.B., B.C.

R. H. ROLLINSON WHITAKER, F.R.C.S.

**Surgical Photographers and Radiographers :**

J. HALL EDWARDS, M.R.C.S. F. EMRRYS-JONES, B.A., L.M.S.S.A.

**Dental Surgeon :**

R. H. ASTBURY, M.B., Ch.B., B.D.S., L.D.S.

**Registrars :**

DR. J. E. H. SAWYER (Medical) MR. E. MUSGRAVE WOODMAN (Surgical)

## ARRANGEMENTS FOR CLINICAL TEACHING.

### I.—MEDICINE.

THE MEDICAL WARDS are visited daily by the Physicians and instruction is given by them to the students who accompany them.

CLINICAL WARD CLERKS are appointed every three months for duty in the wards. They are aided by the House Physicians in note-taking and in clinical diagnosis.

CLINICAL LECTURES on cases in the Hospital wards are delivered by one of the Physicians once every week, on Mondays, at 10.30 a.m.

SPECIAL CLINICAL CLASSES for Senior Students are taken on Tuesdays and Wednesdays, at 10.30 a.m., by one of the Physicians throughout term time.

The Assistant Physicians attend daily in the Out-Patient Department and give clinical instruction.

SPECIAL CLINICAL CLASSES are held in the Out-Patient Rooms on Fridays, at 10.30, by Dr. Stanley Barnes, and on Thursdays, at 10.30 a.m., by Dr. Wynn.

#### Medical Tutorial Classes.

A SENIOR TUTORIAL CLASS IN MEDICINE will be held by Dr. Sawyer on Wednesdays, at 12, in the second and third months of each term, for students reading for the Final Examination.

JUNIOR TUTORIAL CLASSES IN MEDICINE for Clerks and Dressers will be held by Dr. Parsons in the first term of the Winter Session on Tuesdays, at 12 o'clock.

### II.—SURGERY.

The Surgical Wards are visited daily by the Surgeons, who give clinical instruction to students who accompany them.

Surgical In-patient Dressers are appointed every three months. They are attached in equal numbers to each Surgeon, accompany him on his rounds, assist at the surgical operations, and, under the direction of the House Surgeons, dress the cases in the wards.

A CLINICAL LECTURE is delivered every Thursday morning during term time, at 9.30, by one of the Visiting Surgeons, on some case of interest in the wards.

SENIOR CLINICAL CLASSES are held on Monday and Friday mornings, at 9.30, during term time by one of the Surgeons.

A JUNIOR CLINICAL CLASS is held once a week, on Saturdays, by Mr. Haslam, Mr. Heaton, or Mr. Lucas, for students in their first year of attendance at Hospital.

SPECIAL CLINICAL CLASSES are held in the Out-Patient Rooms on Tuesdays, at 11.30, by Mr. Gamgee, and on Thursdays, at 11.30, by Mr. Frank Barnes.

Every day an Assistant Surgeon attends in the Out-Patient Department, and a specially-appointed officer in the Surgical Casualty Department. Dressers are appointed who spend part of their time in the latter department, where an immense number of accidents are attended to, and part in the Out-Patient Rooms, where the diagnosis and treatment of minor surgical ailments are taught.

#### Surgical Tutorial Classes.

A SENIOR TUTORIAL CLASS IN SURGERY will be held for students reading for their Final Examinations, by Mr. Seymour Barling, on Thursdays, at 12 o'clock.

A JUNIOR TUTORIAL CLASS IN SURGERY will be held by Mr. Woodman on Saturdays, at 10.30 a.m.

Surgical operations are performed daily from 10 to 1 in the three main Operating Theatres. The large experience to be gained from this source may be gathered from the fact that during each of the last two years nearly 4,000 operations were performed.

### III.—THE SPECIAL DEPARTMENTS.

#### Gynæcology.

Dr. Thomas Wilson gives clinical instruction in the wards and in the Out-patient Department, and a Clinical Lecture is given once a month, on Mondays, at 10.30 a.m. Senior students are appointed as clerks every three months.

THE GYNÆCOLOGICAL TUTOR, Mr. Whitehouse, holds a class for Senior students twice a week, at hours arranged at the beginning of each term.

Gynæcological out-patients are seen by Dr. Thomas Wilson at 10.30 a.m. on Wednesdays, and by Dr. Whitehouse on Wednesdays and Fridays at 10 a.m. Gynæcological operations take place in Theatre IV on Mondays, Tuesdays, and Thursdays. Upwards of 250 of these are performed every year.

#### Aural and Laryngological Department.

This department is under the charge of Dr. F. W. Foxcroft who attends twice weekly to see out-patients. Demonstrations of Diseases of the Ear and Throat are given every Wednesday, at 9.30 a.m., during term time.

#### Department for Diseases of the Skin.

The Department for the treatment of Diseases of the Skin is under the care of Dr. Douglas Heath, who attends twice weekly, on Tuesdays and Fridays, and gives Clinical demonstrations on Diseases of the Skin at 11.30 a.m. on the Fridays of certain months.

#### Ophthalmic Department.

Mr. Beatson Hird gives Clinical demonstrations on Diseases of the Eye at 9.30 on Tuesday mornings throughout the Session. Out-patients are seen on Tuesdays and Fridays at 9.30 a.m., and cases requiring operation are admitted to the beds specially reserved for such cases.

### X Rays and Light Treatment Department.

This Department has recently been completely re-organised and thoroughly equipped with the latest and most up-to-date appliances, fittings and apparatus, for the investigation and treatment of disease by means of electricity. There is an installation for the treatment of Skin Diseases by the Finsen Rays. The Department is under the charge of Mr. Hall Edwards and Mr. Emrys-Jones, who attend daily at 11 a.m.

### Dental Department.

There is an Out-Patient Dental Department under the charge of Mr. R. H. Astbury, who attends on Wednesday and Saturday mornings. Students are given instruction in the manufacture of the various Dental appliances required after injuries and surgical operations.

### Pathological Department.

This Department is under the charge of the Visiting Pathologist, who holds a class on Saturdays at 11 a.m. There are also two Clinical Pathologists, and a Resident Pathologist.

Students are appointed as clerks for periods of three months, and work in the Pathological Laboratories under the superintendence of the Visiting and Resident Pathologists.

Chemical and Bacteriological investigation of material from the wards is carried out by the Medical and Surgical Clinical Pathologists, who have a complete equipment for that purpose.

### Anæsthetics.

Each term instruction classes in the Administration of Anæsthetics are held by one of the Anæsthetic Officers. After attending these, each student has the opportunity of administering anæsthetics under superintendence in a given number of cases, and thus of learning the methods practically.

## THE QUEEN'S HOSPITAL.

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The Hospital contains 170 beds, distributed in wards arranged for the treatment of accidents, and of urgent medical, surgical, gynaecological and ophthalmic cases; a special ward being reserved for children, and a roof ward for open-air treatment. During 1913 the in-patients treated numbered 3,013, and the out-patients 31,674.

The Out-Patient Consulting Rooms and Casualty Dressing Rooms are grouped conveniently around the Out-Patient Hall.

The two Operating Theatres are well lighted and thoroughly well-appointed.

A department for Radiography, duly installed with the necessary apparatus, is conducted by the Medical Radiographer, who attends regularly for that purpose.

The Pathological Department is an isolated block under the charge of the Pathologist, who is a member of the Honorary Staff. It comprises a post-mortem room, mortuary, and laboratories for bacteriology and general pathology.

There are clinical rooms adjacent to the wards, provided with microscopes and other apparatus for routine clinical pathology.

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## THE QUEEN'S HOSPITAL STAFF.

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**Consulting Physicians :**

SIR JAMES SAWYER, KNT., M.D., F.R.C.P., F.R.S.E.  
CORNELIUS W. SUCKLING, M.D., M.R.C.P.  
ALFRED H. CARTER, M.D., F.R.C.P.

**Consulting Surgeons :**

FRANK MARSH, CH.M., F.R.C.S.  
BENNETT MAY, B.S., F.R.C.S.

**Consulting Ophthalmic Surgeon :**

PRIESTLEY SMITH, M.Sc., F.R.C.S.

**Physicians :**

O. J. KAUFFMANN, M.D., F.R.C.P.  
DOUGLAS STANLEY, M.D., M.R.C.P.  
J. G. EMANUEL, M.D., M.R.C.P.

**Surgeons :**

J. T. J. MORRISON, M.A., B.C., F.R.C.S.  
C. A. LEEDHAM-GREEN, CH.M., F.R.C.S.  
W. BILLINGTON, M.B., M.S., F.R.C.S.

**Obstetric Officer :**

C. E. PURSLOW, M.D., M.R.C.P.

**Ophthalmic Surgeon :**

WILFRID ALLPORT, M.B., B.S., F.R.C.S., Ed.

**Physicians for Out-patients :**

L. G. J. MACKEY, M.D., CH.B., M.R.C.P.  
LAURENCE BALL, M.B., B.S., M.R.C.P.

**Surgeons for Out-patients :**

A. W. NUTHALL, CH.M., F.R.C.S.  
B. J. WARD, F.R.C.S.  
BERTRAM A. LLOYD, M.B., B.S., F.R.C.S.

**Pathologist :**

LAURENCE BALL, M.B., B.S., M.R.C.P.

**Bacteriologist :**

(Vacant.)

**Anæsthetist :**

L. KIRKBY THOMAS, L.R.C.P.

**Medical Radiographer and Photographer :**

HAROLD BLACK, M.B., B.CH., B.A.O.

**Days of Attendance for Out-patients (9 a.m.) :**

*Monday*—Dr. Kauffmann, Dr. Purslow, and Mr. Nuthall.

*Monday*—Mr. J. T. J. Morrison (*Referred for Special Consultation*).

*Tuesday*—Dr. Stanley, Mr. Allport, and Mr. Billington.

*Wednesday*—Dr. Emanuel and Mr. Leedham-Green.

*Thursday*—Dr. Mackey, Dr. Purslow, and Mr. Ward.

*Friday*—Dr. Mackey, Mr. Allport, and Mr. Ward.

Casualty patients are attended on Tuesday and Friday by Mr. Nuthall; Wednesday and Saturday by Mr. Ward; and on Monday and Thursday by Mr. B. A. Lloyd.

## ARRANGEMENTS FOR CLINICAL TEACHING.

### I.—MEDICINE.

MEDICAL WARD CLERKS are appointed from Third Year students for terms of three and six months. They are attached to the Physicians, who direct their studies and give practical instruction to them and to all other students who accompany them on their Hospital rounds. The clerks are also instructed by the House Physicians in practical methods of diagnosis and in note-taking.

CLINICAL LECTURES are given in rotation by the Physicians on Thursday mornings, at 9.30.

CLINICAL CLASSES in the wards are conducted by the Physicians during term at 10.30 on Mondays, Tuesdays, and Fridays.

CLINICAL CLASSES are held in the Out-Patient Rooms on Thursdays and Fridays, at 12 noon, by the Physician for Out-Patients.

#### Medical Tutorial Classes.

A SENIOR TUTORIAL CLASS is held on Wednesdays, at 12, by Dr. Mackey, for Final Year Students.

JUNIOR TUTORIAL CLASSES are held on Tuesdays, at 12, for Third Year Students.

### II.—SURGERY.

SURGICAL DRESSERS are appointed every three months for duty in the wards. They are allotted to the Surgeons for terms of three or six months; they accompany them with other students, when they visit the Hospital to see their patients and give instruction; and they assist at operations. Under the supervision of the House Surgeons they prepare notes and dress such cases as may be assigned to them.

CLINICAL LECTURES are given in rotation by the Surgeons on Friday Mornings at 9-30.

CLINICAL CLASSES are held at 9.30 on Mondays, Tuesdays, and Thursdays.

CLINICAL CLASSES are held in the Out-Patient Room by the Surgeons for Out-Patients in rotation.

### Surgical Tutorial Classes.

A SENIOR TUTORIAL CLASS is held on Mondays, at 12, by the Senior Surgical Tutor, and is intended for students in their final year.

A JUNIOR TUTORIAL CLASS is held on Saturdays, at 9.30, by the Junior Surgical Tutor, for students in their first hospital year.

### III.—GYNÆCOLOGY.

CLERKS IN THE GYNÆCOLOGICAL DEPARTMENT are appointed every three months from the Senior students. They attend Dr. Purslow in his ward and Out-Patient Room, and assist at operations. It is part of their duty also to take notes under the direction of the House Surgeon.

OUT-PATIENT CLINIC AND OPERATIONS.—Dr. Purslow attends at 9.30 a.m. on Mondays and Thursdays to see out-patients. Gynæcological operations are performed by him on Saturdays, at 9.30 a.m.

CLINICAL INSTRUCTION is given by Dr. Purslow on Mondays and Thursdays, at 10 a.m., throughout the year.

**IV.—OPHTHALMOLOGY.**

CLINICAL DEMONSTRATIONS are given by Mr. Priestley Smith and Mr. Allport on Wednesdays, at 9.30 a.m.

OUT-PATIENT CLINIC AND OPERATIONS.—Mr. Allport attends on Tuesdays and Fridays, at 9 a.m., to see outpatients and to give Clinical instruction to students. Operations in cases of eye disease are performed by him on Saturdays, at 11.30 a.m.

**V.—PATHOLOGY.**

CLERKS IN THE PATHOLOGICAL DEPARTMENT are appointed every three months and, under the direction of the Pathologist, make post-mortem examinations and carry out bacteriological, microscopical, and chemical work in the laboratories, and keep records.

DEMONSTRATIONS are specially given on Saturdays, at 12, by the Pathologist, Dr. Ball.

**VI.—MIDWIFERY.**

Midwifery cases are assigned for attendance in the Queen's Hospital Maternity District, under the supervision of the Honorary Obstetric Officer and the Obstetric House Surgeon.

Before attending practical midwifery, students must have passed their Anatomical and Physiological Examinations, have attended a course of lectures on Midwifery, and have for 12 months acted as Surgical Dressers and Clinical Clerks.

Students are also required to conform to the regulations as to attendance at a Maternity Hospital for preliminary instruction in Practical Midwifery (see pages 518 and 519).

They must conform to the Queen's Hospital bye-laws which relate to the work of its Midwifery Department.

Students must apply in the first place to the Secretary of the University Clinical Board, who will furnish them with a "Clinical Midwifery Card" which shall be signed by the Obstetric Officer on the completion of the duties, and returned.

They shall not be engaged in Surgical Dressing, Post mortem, or Dissecting Room work during the time of their attendance.

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## UNIVERSITY CLINICAL BOARD REGULATIONS.

### Appointment of Resident Clinical Assistant at the Jaffray Hospital.

This post is awarded by examination.

The Examination is only open to students taking out the whole of the clinical course at the School of Medicine of the University of Birmingham.

The Clinical Assistant at the Jaffray Hospital is allowed time to attend lectures.

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## CLINICAL PRIZES.

The University Clinical Board offer annually the following Prizes :—

Senior Medical Prize	....	....	Gold Medal.
Senior Surgical Prize	....	....	Gold Medal.
Midwifery Prize	....	....	Gold Medal.
Junior Medical Prize	....	....	Silver Medal.
Junior Surgical Prize	....	..	Silver Medal.

The Examinations for the above Prizes will be held during the first week of May.

Last day for receiving entries, May 10th.

The SENIOR MEDICAL PRIZE will be open to students of not more than *six* years standing in the School of Medicine of the University. Every candidate must produce a certificate of having held the office of Clinical Clerk in either the General or the Queen's Hospital for a period of *six* months. The examination will include a paper of *four* questions on the Principles and Practice of Medicine ; the examination of *two* or more living cases in the presence of the examiners ; the examination of Urines ; together with such additional evidence of a practical knowledge of Medicine as the examiners for the time being shall require.

The JUNIOR MEDICAL PRIZE will be open to third and fourth year students of the Medical School. Every candidate must produce a certificate of having held the office of Clinical Clerk in either the General or the Queen's Hospital for a period of *three* months, and shall deliver the notes of *two* medical cases which have been assigned to him for the purpose by the examiners during the month of March. The examination will include a paper of *four* questions on the Principles of Medicine ; together with such evidence of a practical knowledge of the methods of physical examination, and of the names, uses and employment of instruments and apparatus as the examiners for the time being shall require.

The SENIOR SURGICAL PRIZE will be open to students of not more than *six* years' standing in the School of Medicine of the University. Every candidate must produce a certificate of having held the office of Surgical Dresser in either the General or Queen's Hospital for a period of *six* months. The examination will include a paper of *four* questions on the Principles and Practice of Surgery ; the examination of *two* or more living cases in the presence of the examiners, together with such additional evidence of a practical knowledge of Surgery as the examiners for the time being shall require.

The JUNIOR SURGICAL PRIZE will be open to third and fourth year students of the Medical School. Every candidate must produce a certificate of having held the office of Surgical Dresser in the General or Queen's Hospital for a period of *three* months, and shall deliver the notes of two surgical cases which have been assigned to him for the purpose by the examiners during the month of March. The examination will include a paper of *four* questions on the Principles of Surgery, together with such evidence of the names, uses and methods of employment of common surgical instruments, bandages and apparatus, as the examiners for the time being shall require.

The MIDWIFERY PRIZE will be open to students of not more than *six* years' standing in the School of Medicine of the University. Every candidate must produce a certificate of having personally attended at least *twenty* cases of Midwifery, and also a certificate of having attended in the Gynaecological Department at either the General or the Queen's Hospital for *three* months. He shall deliver the notes of *two* cases which have been assigned to him for the purpose by the examiner during the month of March. The examination will include a paper of *two* questions on Diseases peculiar to Women, and *two* questions on the Principles and Practice of Midwifery, together with a practical examination of such a kind as the examiner for the time being shall determine.

#### GENERAL REGULATIONS.

Notice of intention to compete for the above Prizes must be communicated to one of the Secretaries of the University Clinical Board on or before the 1st day of March in each year.

In no case will any Prize be awarded unless at least *seventy per cent.* of the total possible number of marks be obtained.

A professional qualification obtained during the Winter Session *immediately* preceding these examinations does not disqualify a candidate.

#### INFORMATION FOR STUDENTS ATTENDING THE HOSPITALS.

1.—The arrangements for Clinical Teaching are, as far as possible, conducted at both Hospitals on the same plan.

2.—The recognised hours for Hospital attendance of students are from 9 a.m. to 1 p.m. daily.

3.—The Teaching provided consists of—

- (1) Clinical Lectures in the theatre or lecture rooms;
- (2) Clinical Instruction in the Wards;
- (3) Tutorial Classes;
- (4) Pathological Demonstrations.

The first three forms are given by the Members of the Honorary and Assistant Staffs. The Tutorial Classes are conducted by Special Tutors selected for that duty.

4.—Clinical Instruction is given in the Medical or Surgical Wards daily, but not during the hour set apart for the Clinical Lectures.

5.—Registers of attendance on Clinical Lectures and Clinical and Tutorial Classes are kept. Special certificate cards are issued to students for the posts of Clinical Clerk, Dresser, etc. Students must obtain the signatures of Honorary Officers to these cards immediately their work is completed. Cards are also supplied to Final year students, on which each individual attendance will be certified by the teacher.

6.—All students are required at the end of every term to deliver to the Clerk to the Clinical Board in the Dean's Office the official cards for their Clinical work duly signed by the Honorary Officers concerned.

7.—During the First year of the Medical Curriculum attendance at Hospital is not recognised.

During the Second year of the Medical Curriculum students should attend the Surgical Tutorial Classes at the Hospital once a week. (This course is not compulsory on Candidates for the Diplomas of the English and Scotch Conjoint Boards, and will, under no circumstances, be reckoned as one of the years required by the Schedules of the above-mentioned bodies; all students are, however, strongly advised to attend this course during this year.)

During the Third year of the Medical Curriculum students should attend—

- (a) Clinical Lectures on Surgery; (b) Medical and Surgical Clinical Classes; (c) Surgical Dressing (including three months Out-Patient and six months In-Patient Dressing); (d) Medical Tutorial Classes.

N.B.—These Tutorial Classes must be attended for three months before In-Patient Dressing is commenced.

(No student will obtain credit for this year of Hospital work unless he has previously passed his Anatomical and Physiological Examinations.)

During the Fourth year of the Medical Curriculum students should attend—

- (a) Clinical Lectures on Medicine; (b) Medical and Surgical Clinical Classes; (c) Medical Clinical Clerking for six months; (d) Clinical Gynæcology; (e) Post-mortem Clerking. The student must also attend Post-mortem Examinations and Demonstrations during the year.

During the Fifth year of the Medical Curriculum students should attend—

- \*(a) Clinical Instruction in Medicine and Surgery (during this year students are at liberty to attend these subjects at either Hospital); (b) Clinical Ophthalmology (three months); (c) Vaccination; (d) Fever Hospital (three months); (\*e) Mental Hospital (three months); (f) Maternity Hospital (three months) or Maternity Hospital (one month) and Clinical Midwifery (twenty cases); (g) Gynæcological Clerking (three months); (h) Instruction in Anæsthetics, consisting of attendance at three Lectures and the personal administration of Anæsthetics in twenty cases.

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\* The subjects (a) and (e) *must* be attended during the final year.

8.—Students holding the appointments of Medical Clinical Clerk, or Surgical Dresser, are exempt from Clinical Classes in Medicine and Surgery on the days on which their services are required by the Officer under whom they are working.

9.—The following Syllabus of Instruction is followed in the Tutorial Classes for Elementary Medicine and Surgery—

#### MEDICINE :

- (1) **The Thorax.** Surface Anatomy of Heart, Lungs, main vessels, etc.

*The Circulatory System* : Physical Examination of the Heart and its neighbourhood ; Inspection and Palpation ; the position and character of the Apex Beat and the commoner causes of its displacement. Technique of Percussion, Superficial and Deep Cardiac Dulness. Auscultation ; normal Heart sounds ; abnormal Heart sounds and murmurs. The signs of Valvular Disease ; the signs of Pericarditis and Pericardial Effusion. The Pulse ; alterations in Disease ; the use of the Sphygmograph.

*The Respiratory System* : Physical Examination of Lungs and Pleurae ; Palpation and Percussion ; Auscultation ; Characters of normal Breath sounds ; the Breath sounds in disease ; the Voice sounds in disease ; adventitious sounds and accompaniments.

- (2) **The Abdomen.** Surface Anatomy of Abdominal Viscera. Methods and results of general abdominal inspection and percussion ; the signs of ascites ; the common abdominal tumours ; the Liver and Gall-bladder ; the detection of enlargement of the Liver and its commoner causes. The Spleen ; methods of detecting enlargement. The Kidneys ; the conditions which render them palpable. The Stomach : methods of examination ; examination of Stomach contents.

*The Urine* : quality, colour, odour, density, and naked eye and microscopical characters in health and disease ; the methods of detecting sugar and albumen and other abnormal constituents ; the naked eye and microscopical examination of urinary deposits.

- (3) **The Nervous System,** Examination of.  
Clinical Examination of the Blood.

SURGERY : *Winter*—(1) Bandaging ; (2) Strapping ; (3) Application of Splints ; (4) Minor Injuries ; (5) Wound Dressing and Wound Treatment ; (6) Haemorrhage, Haemostasis, Tourniquets ; (7) Artificial Respiration ; *Summer*—(8) Minor Operations ; Catheterisation, Plugging the Nares ; Hypodermic Injection, Removal of Foreign Bodies from the Eye, Ear, and Oesophagus ; (9) Shock, Fainting, Stings, Leeching, Counter-irritation ; (10) Surface Landmarks and Guides.

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### CLINICAL TEACHING FOR DENTAL STUDENTS.

All Dental Students in their First Hospital Year attend the Saturday morning Surgical Classes at one Hospital, and the Junior Medical Tutorial at the other. For the present year, 1914-15, they will attend the Special Junior Tutorial Class in Medicine held on Thursdays at 12.0 at the Queen's Hospital, and the Surgical Classes held at the General Hospital on Saturday mornings.

#### Arrangements for the Instruction of Dental Students at the General and Queen's Hospitals.

#### FOR DENTAL STUDENTS IN THEIR FIRST HOSPITAL YEAR.

##### *General Hospital :*

Surgical Ward Class on Saturdays, at 9.30, by the Surgeons.

Junior Tutorial Class in Surgery on Saturdays, at 10.30, by the Surgical Tutor.

Junior Tutorial Class in Medicine on Thursdays, at 12.0, by the Medical Tutor.

*Queen's Hospital :*

Ward Class on Saturdays, at 9.30, by the Surgeons.

Junior Tutorial Class in Surgery on Saturdays, at 11.30, by Surgeons to Out-Patients.

Junior Tutorial Class in Medicine on Thursdays at 12.0, by the Medical Tutor.

## DENTAL STUDENTS IN THEIR SECOND HOSPITAL YEAR.

*General Hospital :*

Surgical Out-Patients, Wednesdays, at 9.0 a.m.,  
Fridays at 9.0 a.m.

The Students are expected to remain in attendance until the Out-Patients are disposed of.

Special Ward Class on Wednesday mornings at 10.30,  
by Dr. Stacey Wilson.

*Queen's Hospital :*

Surgical Out-Patients, Wednesdays, at 9.0 a.m.,  
Fridays, at 9.0 a.m.

The Students are expected to remain in attendance until the Out-Patients are disposed of.

Senior Tutorial Class in Medicine on Wednesdays,  
at 12.0, by Dr. Mackey.

### GENERAL REGULATIONS.

1.—Every student is required to register his name for Hospital Practice within fifteen days of the commencement of the Winter Session.

2.—Students must attend twelve months alternately at the General and Queen's Hospitals, as directed at the time of registration, but during their final year they may attend at either or both Hospitals.

3.—Students who enter for a term of six months or less may choose which Hospital they will attend.

4.—All students registering for Hospital Practice are required to attend at least *two-thirds* of the Classes for which they register.

5.—Students referred at their Final Examinations must register with the Secretaries of the University Clinical Board for any further attendance they may require.

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### THE UNIVERSITY CLINICAL BOARD.

Professor WM. F. HASLAM (*Chairman*).

Professor PETER THOMPSON (*Dean*).

Professor THOMAS WILSON

Professor J. T. J. MORRISON

Professor O. J. KAUFFMANN

Dr. C. E. PURSLOW.

Mr. GEORGE HEATON.

Dr. SYDNEY SHORT      }  
Dr. EMANUEL            } *Secretaries.*

*Act. Clerk to the Board* : A. H. MARSTON.

## ASSOCIATED HOSPITALS.

The undermentioned Institutions are open to the students of the University free (with the exception of the City Fever Hospital, the City Mental Hospital, and the Maternity Hospital), under the following regulations.

That it be recognised that students attending such Hospitals do so upon the understanding that, except in the case of the City Fever Hospital, the City Mental Hospital, the Birmingham and Midland Eye Hospital, and the Maternity Hospital, such attendance is in no way to supersede or be considered as equivalent to attendance at the General and Queen's Hospitals.

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### THE CITY MENTAL HOSPITAL, WINSON GREEN.

*Medical Superintendent :*

CECIL B. ROSCROW, L.R.C.P., L.R.C.S. (Edin.),  
L.F.P.S. (Glas.).

This Institution is recognised by all the Universities and Licensing Bodies as a Hospital at which attendance may be made in the subject of Mental Disease. By the regulations of British Universities and other bodies, such attendance may count towards the requisite period of Clinical study. Courses of instruction are given during the Winter Session *only*, viz., October to December, and January to March, on Saturdays, at 10 a.m., commencing on the first Saturday in the Term.

All students wishing to attend must make application at least one week previously.

The minimum number of attendances is *eight*, and no certificate will be granted unless that number has been attended.

A Fee of £2 2s. for three months' attendance has to be paid in advance to Mr. Roscrow, to whom application must be made for further information.

**THE CITY FEVER HOSPITAL.**  
Lodge Road.

*Medical Superintendent*: HENRY WHITEHEAD, M.D., D.P.H.  
(Manchr.), M.B., B.S. (Lond.).

This institution is recognised by all the Licensing Bodies as a Fever Hospital at which attendances may be made.

Courses of Instruction are given during the Winter Session *only*, viz., October to December and January to March, on Saturdays, at 11.30 a.m., commencing on the first Saturday in the Term in October and January respectively.

Students attend for twelve consecutive weeks at the above-named institution.

The following regulations have to be observed :—

1.—Every student while within the gates of the Hospital shall be subject to the control of the Medical Superintendent, who has authority to suspend him from further attendance in case of breach of discipline.

2.—He shall strictly adhere to the regulations made from time to time with regard to disinfection.

3.—He shall not visit any ward except in the company of the Medical Superintendent or his deputy.

4.—Registers are kept at the Hospital in which are entered the name of every student and the number of his attendances.

5.—The minimum duration of any course of instruction is three months, the hours of attendance to be fixed by the Medical Superintendent.

6.—A certificate, to be signed by the Dean of the Medical Faculty shall be granted to each student when he shall have completed his course of study to the satisfaction of the Medical Superintendent.

7.—The fee for each course is *Two Guineas* for the first three months, and *One Guinea* for each additional month or part of a month, payable in advance to the Secretary of the University.

8.—These rules apply also to qualified medical men who may desire to attend the Hospital for clinical instruction.

**BIRMINGHAM AND MIDLAND EYE HOSPITAL.**

*Honorary Consulting Physician :*

R. SAUNDBY, M.D., F.R.C.P., LL.D.

*Honorary Consulting General Surgeon :*

GEORGE HEATON, M.A., M.B., B.Ch., F.R.C.S.

*Honorary Consulting Surgeon :*

D. C. LLOYD-OWEN, M.D., Ch.B., F.R.C.S.I.

*Surgeons :*

E. W. WOOD-WHITE, B.A., M.D., B.Ch.

J. JAMESON EVANS, M.D., C.M., F.R.C.S.

W. H. FULFORD EALES, M.A., M.B., B.C.

*Assistant Surgeons :*

T. HARRISON BUTLER, M.A., M.D., B.Ch.

R. BEATSON HIRD, M.D., Ch.B., F.R.C.S.

D. PRIESTLEY SMITH, M.B., Ch.B., M.R.C.S.,  
L.R.C.P.

*Dental Surgeon :*

JOHN WESTWOOD, M.R.C.S., L.D.S.

*Anæsthetist :*

S. W. HAYNES, M.D.

*Radiographers :*

MR. HALL EDWARDS and MR. EMRYS-JONES.

*Pathologist :*

ERIC ASSINDER, M.D., Ch.B.

This Hospital possesses 110 beds, and there is an average daily attendance of out-patients of 270.

This Institution is recognised by Universities and the Royal College of Surgeons, England, and Royal College of Physicians, London, as an Ophthalmic Hospital at which clinical instruction in Ophthalmology may be

received. The Medical Staff give instruction on Refraction, Ophthalmoscopy, External Diseases of the Eye and Ocular Pathology at 9 a.m. daily, or at other times by arrangement. Students attending for a period of three months will be granted Certificates which will qualify for the University and Conjoint Board Examinations.

Post-graduate clinical instruction in Ophthalmology, with special reference to the requirements of Medical Inspectors of Schools, is given daily at 9 a.m., or at times arranged.

FEES: Two guineas for three months; three guineas for six months.

*Days of Attendance:*

Mr. WOOD-WHITE	....	Mondays and Thursdays.
Mr. BEATSON HIRD	....	
Mr. JAMESON EVANS	....	Tuesdays and Fridays.
Mr. HARRISON BUTLER	....	
Mr. FULFORD EALES	....	Wednesdays and Saturdays
Mr. D. PRIESTLEY SMITH	....	

Out-Patients are seen daily at 9 a.m.

Operations daily at 11 a.m.

There are three Resident Surgical appointments open to qualified men.

Further information may be obtained from the Hon. Secretary of the Medical Board.

**THE ROYAL ORTHOPÆDIC AND SPINAL HOSPITAL.**

*Honorary Consulting Physician :*

C. W. SUCKLING, M.D., M.R.C.P.

*Honorary Consulting Surgeon :*

WILLIAM THOMAS, M.B., F.R.C.S.

*Honorary Surgeons :*

WM. EDWARD BENNETT, M.B., Ch.B., F.R.C.S.

FRANK BARNES, M.B., M.S., Lond., F.R.C.S.

G. PERCIVAL MILLS, M.B., B.S. (Lond.), F.R.C.S.  
(*Hon. Sec. to the Medical Committee*).

*Anæsthetist :*

WALTER R. JORDAN, M.D. (Lond.).

*Qualified Clinical Assistants :*

DR. G. W. CRAIG.

DR. C. J. THOMPSON.

*Days of Attendance (Out-Patients) :*

MR. WM. EDWD. BENNETT .... Monday and Thursday,  
at 2.30 p.m.

MR. FRANK BARNES .... .... Wednesday and Friday, at  
2.30 p.m.

MR. G. PERCIVAL MILLS .... Tuesday, at 2.30 p.m.

Operations—Tuesday (Mr. Bennett), Thursday (Mr. Mills), and Friday (Mr. Barnes), at 9 a.m.

Accommodation for 30 In-Patients.

QUALIFIED CLINICAL ASSISTANTS are appointed annually  
at an Honorarium of Twenty-five Guineas..

Clinical Instruction is given by the Honorary Surgeons  
at the above-mentioned hours of attendance in the Out-  
Patient Department and at the Operations.

Further particulars may be obtained from the Secretary  
to the Medical Committee.

**BIRMINGHAM AND MIDLAND EAR AND THROAT  
HOSPITAL.**

*Honorary Consulting Physician :*

JAMES W. RUSSELL, M.A., M.D., F.R.C.P.

*Honorary Consulting Surgeon :*

WRIGHT WILSON, F.R.C.S.E.

*Surgeons :*

C. J. LEWIS, M.D.

WILLIAM LAMB, M.D., C.M., M.R.C.P.

*Honorary Assistant Surgeons :*

WILFRID GLEGG, M.D., C.M., M.R.C.P.E.  
SEYMORE JONES, F.R.C.S.

*Days of Attendance :*

Monday ....	....	....	....	DR. LAMB	9.30 to 11 a.m
Tuesday ....	....	....	....	DR. GLEGG	
Wednesday ....	....	....	....	MR. JONES	
Thursday ....	....	....	....	DR. LEWIS	
Friday ....	....	....	....	MR. JONES	

The Hospital has 41 beds in occupation

A Resident House Surgeon is appointed every six months, at a salary of £80 per annum, and he is eligible for re-election. Rooms, Board and washing are provided in the Hospital.

Candidates for the post must possess a registered qualification in Medicine and Surgery, and will be required to devote their whole time to the service of the Hospital. There is ample time for reading. Further particulars may be obtained from the Secretary of the Hospital, Edmund Street.

Practical instruction and demonstrations are given to Practitioners and Medical Students from 9.30 a.m. to 12 noon daily.

Fees for attending the Practice of the Hospital :— Practitioners, one month, one guinea; three months, two guineas; Medical Students, free.

**THE BIRMINGHAM AND MIDLAND FREE HOSPITAL  
FOR SICK CHILDREN.**

*Consulting Physicians :*

CORNELIUS W. SUCKLING, M.D.

RICHARD J. DRURY, M.D. ANNIE E. CLARK, M.D.

*Consulting Surgeons :*

GEORGE ELKINGTON, M.R.C.S.

WILLIAM THOMAS, F.R.C.S. GEORGE HEATON, F.R.C.S.

*Consulting Ophthalmic Surgeon :*

LLOYD OWEN, M.D.

*Physicians :*

WALTER R. JORDAN, M.D.

DOUGLAS STANLEY, M.D., M.R.C.P.

J. G. EMANUEL, M.D., M.R.C.P.

*Surgeons :*

L. P. GAMGEE, F.R.C.S.

C. LEEDHAM GREEN, F.R.C.S.

A. W. NUTHALL, F.R.C.S.

*Physicians for Out-Patients :*

LEONARD G. PARSONS, M.D., M.R.C.P.

LAURENCE BALL, M.B., M.R.C.P.

K. DOUGLAS WILKINSON, M.D., M.R.C.P.

*Surgeons for Out-Patients :*

SEYMOUR BARLING, F.R.C.S.

BERNARD WARD, F.R.C.S.

BERTRAM A. LLOYD, F.R.C.S.

*Ophthalmic Surgeon :*

J. MARTIN YOUNG, M.B., C.M.

*Dental Surgeon :*

C. H. HOWKINS, M.R.C.S., L.D.S.

*Days of Attendance :*

Monday .... DR. JORDAN, DR. WILKINSON, and MR. LLOYD.

Tuesday .... DR. PARSONS, DR. L. BALL, and MR. LLOYD.

Wednesday DR. STANLEY, DR. WILKINSON, MR. NUTHALL,  
and MR. C. H. HOWKINS.

Thursday .... DR. JORDAN, DR. BALL, and MR. WARD.

Friday .... DR. EMANUEL, DR. PARSONS, MR. BARLING,  
and MR. MARTIN YOUNG.

Saturday .... DR. WILKINSON and MR. WARD.

**CLINICAL INSTRUCTION.**—Ward Classes are held once a week during Term by the Physicians on the days and hours announced upon the notice boards of the University and Hospitals.

## THE MATERNITY HOSPITAL OF THE BIRMINGHAM LYING-IN CHARITY.

### *Physicians :*

THOMAS WILSON, M.D. (Lond.), Ch.M. (Birm.),  
F.R.C.S.

SMALLWOOD SAVAGE, M.A., M.B., B.Ch. (Oxon.),  
F.R.C.S.

J. T. HEWETSON, M.D. (Edin.), Ch.M. (Birm.),  
F.R.C.S.

W. A. POTTS, M.A. (Cantab.), M.D. (Edin.).

J. FURNEAUX JORDAN, M.B., B.Ch. (R.U.I.), F.R.C.S.  
F. EDGE, M.D., B.Sc. (Lond.), F.R.C.S.

### *Hon. Obstetric Registrar :*

LEWIS GRAHAM, M.S. (Lond.), F.R.C.S. (Eng.)

There are 25 beds in the Hospital. The In-Patients include cases of all kinds of complications of pregnancy and labour, and number about 500 annually.

Facilities are afforded to students for attending the practical work of the Hospital during certain months in the year, and clinical instruction is given by the Honorary Physicians at such hours as may be arranged from time to time. Not more than six students are admitted at one time, and no one who is attending the Dissecting or Post-mortem Room can be admitted.

There is limited accommodation for resident women students, who are permitted under certain conditions to attend midwifery cases in the districts of the Charity, where 1,600 patients are attended annually.

Further particulars may be obtained from Dr. Thomas Wilson.

FEES :—Internal Students (women only), six guineas a month, including residence. External Students, two guineas a month.

**THE BIRMINGHAM AND MIDLAND HOSPITAL  
FOR WOMEN.**

*Honorary Consulting Surgeon:*

ANNIE E. CLARK, M.D.

*Honorary Surgeons:*

CHRISTOPHER MARTIN, M.B., F.R.C.S.  
J. FURNEAUX JORDAN, M.B., F.R.C.S.  
FREDERICK EDGE, M.D., F.R.C.S., M.R.C.P.  
MARY D. STURGE, M.D.  
JOHN T. HEWETSON, M.D., F.R.C.S.  
LEWIS GRAHAM, M.S., F.R.C.S.

*Honorary Physician:*

LEONARD MACKEY, M.D., M.R.C.P.

*Anæsthetists:*

SARA WHITEFORD, M.B., B.S.  
L. KIRKBY THOMAS, M.R.C.S., L.R.C.P.

The Hospital consists of an In-Patient Department (60 beds) at Sparkhill, and an Out-Patient Department at the Upper Priory.

The Medical Staff attend at the Out-Patient Department, Upper Priory, on the following days, at 2 p.m. :—

Monday	....	....	....	MR. FURNEAUX JORDAN. MR. HEWETSON.
Tuesday	....	....	....	DR. EDGE. DR. MARY STURGE.
Wednesday	....	....	....	MR. CHRISTOPHER MARTIN. MR. HEWETSON.
Thursday	....	....	....	DR. EDGE. MR. GRAHAM.
Friday	....	....	....	MR. FURNEAUX JORDAN.

Operations at the In-Patient Department : 9 a.m. daily.  
Clinical instructions will be given by the Hon. Surgeons at the above mentioned hours of attendance.

Further particulars may be obtained from the Secretary to the Medical Board—Dr. Mary Sturge.

THE FOLLOWING INSTITUTIONS ARE RECOGNISED  
BY THE UNIVERSITY FOR GENERAL AND SPECIAL  
CLINICAL INSTRUCTION.

FOR GENERAL CLINICAL PURPOSES.

The General Hospital.  
The Queen's Hospital.

FOR FEVERS.

The Birmingham City Hospital (Lodge Road).

FOR LUNACY.

The Birmingham City Mental Hospital (Winson Green).

FOR OBSTETRICS.

The Obstetric Department of the Queen's Hospital.  
The Maternity Hospital of the Birmingham Lying-in  
Charity.  
The Rotunda Hospital, Dublin.  
The Coombe Hospital, Dublin.

FOR OPHTHALMOLOGY.

The Eye Department of the General Hospital.  
The Eye Department of the Queen's Hospital.  
The Birmingham and Midland Eye Hospital.

ASSOCIATED HOSPITALS.

The Royal Orthopædic and Spinal Hospital.  
The Birmingham and Midland Ear and Throat  
Hospital.  
The Birmingham and Midland Free Hospital for Sick  
Children.  
The Birmingham and Midland Hospital for Women.

FOR DENTAL HOSPITAL PRACTICE.

The Birmingham Dental Hospital.

## VACCINATION.

W.M. H. LINE, B.A., M.D. (Dub.), D.P.H. (Camb.),  
*Public Vaccinator.*

Birmingham Teaching Station at 144, Hockley Hill.

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*Regulations according to the Instructions of the Local  
Government Board for 1914—1915.*

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### THREE COURSES OF INSTRUCTION WILL BE GIVEN :

- 1st—Commencing the second Thursday in October.
- 2nd—Commencing the third Thursday in January.
- 3rd—Commencing the fourth Thursday in April.

The day of holding the Class is subject to alteration, to meet the convenience of the class.

An attendance book is provided, wherein every attendance is registered by the signature of the pupil, with other details.

The course of instruction consists of at least six demonstrations and addresses.

The Class commences punctually at 1.30 p.m. each day, at which time the Register will be open.

FEE : £1 11s. 6d., payable to Dr. W. H. Line, on entrance.

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## LIBRARY OF THE BIRMINGHAM MEDICAL INSTITUTE.

By the courtesy of the Committee of the Medical Institute, students of the Faculty of Medicine are admitted to read in the Library of the Institute under the following conditions.

1.—Admission is confined to—

- (a) 3rd, 4th, and 5th years' students.
- (b) 1st and 2nd years' students reading for higher examinations,
- (c) Sons of members of the Institute, of any year, whether reading for higher examinations or not.

Classes *a* and *b* must apply to the Dean of the Medical Faculty for a card of recommendation, which they must send, together with their letter of application, to the Hon. Secs. of the Institute. Class *c* must apply direct to the Hon. Secs.

2.—Students are only admitted to the Library Hall, and *not* to the Reading Room or the Smoking Room.

3.—It is understood that the Hall is not to be used for the reading of text-books.

4.—Each student will receive a printed ticket of admission from the Librarian. He must show this whenever required, and must get it renewed every year.

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## DENTAL DEPARTMENT.

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### DEGREES AND DIPLOMA IN DENTAL SURGERY.

The University confers the Degrees of Bachelor and Master of Dental Surgery (B.D.S. and M.D.S.), and a Diploma in Dental Surgery (L.D.S.).

**PRELIMINARY EXAMINATION.**—In order to be registered as a Dental Student, one of the preliminary examinations fulfilling the requirements of the General Medical Council must be passed. Students preparing for the Degree in Dental Surgery must pass the Matriculation Examination or its equivalent. See page 149.

#### TIME.

The Curriculum for the Diploma in Dental Surgery extends over four years, and that for the Degree of B.D.S. over five years, from the date of Registration as a Dental Student.

#### COST.

The total cost for the L.D.S. Curriculum, including Hospital and Examination Fees, is £114 15s., and that for the B.D.S. £149 1s.

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Students can enter the Dental School at any time during the Academic Year, but are recommended to commence their Curriculum at the beginning of the Winter Session in October.

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## THE DENTAL CURRICULUM.

The teaching of Dentistry is undertaken by the University acting in association with the Birmingham Dental Hospital.

The Clinical Teaching is carried out under the direction of the University Dental Clinical Board.

Special Courses of instruction are provided in connection with the Faculty of Medicine of the University for the whole of the Dental Curriculum.

The courses of instruction qualify not only for the Degrees and Diploma of the University of Birmingham, but for the Diplomas in Dental Surgery of all Licensing Bodies.

It is strongly recommended that students taking out their courses of study in the University of Birmingham should take the Dental Degrees or License of that University for which the University courses of study are specially designed ; but students may, if they so desire, also prepare in this University for the examinations of other Licensing Bodies.

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The DENTAL CURRICULUM may be divided into (1) Preliminary Education, (2) Mechanical Dentistry, (3) Professional and Hospital Study.

**PRELIMINARY EXAMINATION.**—In order to be registered as a Dental Student, one of the preliminary examinations fulfilling the requirements of the General Medical Council must be passed. Students preparing for the Degree in Dental Surgery must pass the Matriculation Examination or its equivalent.

REGISTRATION AS A DENTAL STUDENT by the General Medical Council should be effected as soon as a recognised Preliminary Examination has been passed. Forms of Registration may be had on application to the Dean of the Medical Faculty at the University.

MECHANICAL DENTISTRY.—The student devotes two years to instruction in Dental Mechanics in the Mechanical Laboratory of the Dental Hospital, or under the direction of a Registered Dental Surgeon.

Any part of the period (two years) required for instruction in Mechanical Dentistry may be taken prior to registration, but this does not in any way lessen the period of professional study *which must be taken after registration as a Dental Student.*

Before admission to the Final Examination for a Diploma in Dental Surgery, the candidate must produce evidence of having been engaged in the acquirement of professional knowledge during four years, and for the degree of Bachelor of Dental Surgery during five years, subsequent to the date of registration as a Dental Student.

PROFESSIONAL AND HOSPITAL STUDY.—This part of the curriculum extends over at least two years, and comprises :—

- (1) Lectures and Practical Classes in the Medical School ;
- (2) Special Dental Lectures and Dental Hospital Practice ;
- (3) General Hospital Practice.

Particulars relating to the course of instruction at the University may be had from the Hon. Secretary of the School of Dentistry at the University.

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## ENTRANCE SCHOLARSHIP FOR DENTAL STUDENTS.

1.—One Scholarship is offered annually of the value of £37 10s.

2.—It is awarded to the student who, entering for the Dental Degree of the University in October, or having entered not earlier than the previous April, shall pass the best examination in the subjects studied during his apprenticeship.

3.—Candidates must be under the age of twenty-one years.

4.—Application for admission, together with a certificate of birth, must be sent to the Dean of the Medical Faculty on or before October 15th.

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## CLINICAL INSTRUCTION FOR DENTAL STUDENTS.

1.—The Clinical Instruction at the Dental Hospital is carried out under the direction of the University Dental Clinical Board (see page 646).

2.—The General and Queen's Hospitals offer every advantage for the study of general Surgery and Medicine, the arrangements for which are carried out under the direction of the University Clinical Board. Special classes for Dental students are held in Clinical Medicine and Clinical Surgery, and Tutorial Classes are arranged for Junior and Senior Dental Students at both Hospitals (see page 603).

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## REGULATIONS FOR DEGREES IN DENTAL SURGERY.

1.—The Degrees conferred by the University are those of Bachelor and Master of Dental Surgery (B.D.S. and M.D.S.).

2.—All candidates for these Degrees must pass the same Matriculation Examination as that required from candidates for Medical Degrees.

3.—The Degree of Bachelor of Dental Surgery is not conferred upon any candidate who has not obtained the License in Dental Surgery of the University, or from some body legally entitled to confer such qualification. The candidate is not eligible for the Degree until a period of twelve months has elapsed from the passing of his examination for the License in Dental Surgery. Of this period at least six months must be spent in the Dental Department of a General Hospital approved by the University.

4. A.—In addition to the License in Dental Surgery the candidate must produce evidence that he has attended the Courses required by Medical Students of the University in the following subjects and passed the Examinations held in the same for Medical and Surgical Degrees :—

- (a) Chemistry, and Practical Chemistry.
- (b) Physics, and Practical Physics.
- (c) Elementary Biology.
- (d) Anatomy, and Practical Anatomy.
- (e) Physiology, and Practical Physiology.

B.—That he has attended the following courses, and passed the class examinations held in each of these subjects :—

- (f) One Special Course of Lectures on Medicine.
- (g) One Special Course of Lectures on Surgery.
- (h) Pathology and Bacteriology.

C.—That he has attended Courses, and passed the class examinations in :—

- (i) Dental Histology and Patho-Histology.
- (j) Comparative Dental Anatomy.
- (k) Dental Surgery and Prosthetic Dentistry.

D.—That he has received instruction in the Clinical Examination of living cases at the Dental Department of a General Hospital for a period of not less than six months.

E.—That he has received a course of practical instruction in the administration of the Anæsthetics usually employed in Dental Practice.

5.—The Final Examination will deal with the subjects in Classes C and D.

6.—On the expiration of twelve months from the date of passing the Examination for the Degree of Bachelor of Dental Surgery, the candidate will be eligible for that of Master of Dental Surgery.

7.—For this Degree candidates will be required to submit a Thesis containing original work and investigations in some subject connected with Dentistry, which Thesis shall be submitted to examiners to be nominated by the Dental Advisory Board. The Degree will be awarded or withheld according to the report of these examiners.

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## REGULATIONS FOR THE DIPLOMA IN DENTAL SURGERY.

I.—In the Faculty of Medicine there is a Diploma in Dental Surgery, entitled Licentiate in Dental Surgery (L.D.S.), which is registrable in accordance with the Dentists Act, 1878 (41 to 42 Vict. xxxiii, Clause xviii.)

II.—The courses of study and the number and nature of the examinations qualifying for the Licentiate in Dental Surgery are prescribed by Regulations.

### Regulations.

1.—Candidates for the Diploma are required to pass such a preliminary examination as may from time to time be required by the General Medical Council for Registration as a Dental Student.

2.—Candidates before admission to the Final Examination are required to furnish evidence (i) of having attained the age of twenty-one years, and (ii) of having been engaged

in professional study for a period of at least four years subsequent to the date of registration as a Dental Student by the General Medical Council.

3.—Candidates for the Diploma are required to present certificates of attendance upon the several courses of study prescribed by the University. Regulations for attendance, and to satisfy the Examiners in four Examinations, viz. :—

- (a) The First Examination.
- (b) The Second Examination.
- (c) The Third Examination.
- (d)\* The Final Examination.

#### **First Examination.**

4.—Candidates before presenting themselves for the First Examination are required to furnish (i) a certificate of Registration as a Dental Student by the General Medical Council, and (ii) Certificates of having satisfactorily attended courses in the prescribed subjects for the First Examination, viz. :—

- (a) Chemistry, Lectures and Laboratory work (6 months).
- (b) Physics, Lectures and Laboratory work (6 months).

**NOTE.**—Attendance upon these courses may be made at any Institution recognised for this purpose by the University

The Examination consists of one written Paper in Chemistry and one in Physics, and a Practical Examination in both subjects.

Candidates must present themselves in *both* subjects. A candidate may be allowed to pass in *one* subject provided he has obtained a reasonable standard of marks in the subject in which he fails.

#### **Second Examination.**

5.—Candidates before presenting themselves for the Second Examination must have passed the First Examination, and are required to furnish Certificates of having served for a period of not less than two years pupilage in

Mechanical Dentistry, either with a Registered Dentist, or in the Mechanical Laboratory of a Dental Hospital recognised for this purpose by the University, and of having attended in the University the following courses for the Second Examination :—

- (a) Dental Mechanics Lectures (3 months).
- (b) Dental Metallurgy Lectures and Practical (6 months).
- (c) Dental Materia Medica Lectures (3 months).

The Examination consists of a written paper in Dental Metallurgy and a practical and oral Examination in Mechanical Dentistry.

Candidates must present themselves in *both* subjects.

A candidate may be allowed to pass in *one* subject provided he has obtained a reasonable standard of marks in the subject in which he fails.

NOTE.—At the Examination in Mechanical Dentistry, Candidates will be required to provide themselves with the following instruments, viz. :—

Wax Spatula, double-ended. Sculptors. Gouge and Handle, Vulcanite Files. Gold Files. Pliers, Pin-roughing and Bending, and Snipe-nose. Cutting Nippers. Broaches and Handles. Fret Saw. One Mellote's Moldine Outfit. One Bunsen Burner (laboratory). Fine Saws. Chasers, Special. Blowpipe for Mouth, 12-inch. Solder Tweezers. Crown Holder. Shears, curved. Collar Pliers, N.P. Pin Nippers, plain. Rivetting Hammer. Dividers, 4½-inch.

The following instruments will be supplied by the Dental Hospital, viz. :—

Hammers for striking up plates. Horn Mallets. Ordinary casting materials and apparatus.

### Third Examination.

6.—Candidates before presenting themselves for the Third Examination must have passed the Second Examination, and are required to present certificates of having

attended in the University the following courses prescribed for the Third Examination, viz. :—

- (a) Anatomy, Lectures (6 months)
- (b) Anatomy, Practical (12 months).
- (c) Physiology, Lectures (6 months).
- (d) Physiology, Practical Histology (3 months).
- (e) Human and Comparative Dental Anatomy, Lectures (6 months).
- (f) Dental Histology, Practical (3 months).

The Examination consists of :—

A Paper and Oral Examination in Anatomy, a Paper and an Oral Examination in Physiology, a Paper in Dental Anatomy and Dental Histology, and an Oral Examination in Dental Anatomy and Dental Histology.

Candidates must present themselves in *all* subjects of the Examination.

A Candidate may pass in *two* subjects, *i.e.*, (a) Anatomy and Physiology, or (b) Dental Anatomy and Dental Histology, provided he has obtained a reasonable standard of marks in the subjects in which he fails.

#### Final Examination.

7.—Candidates before presenting themselves for the Final Examination are required to have passed the Third Examination and to furnish certificates of having attended in the University, or in a Hospital recognised for the purpose by the University, courses of instruction in the subjects prescribed for the Final Examination, viz. :—

- (a) Medicine Lectures for Dental Students (6 months)
- (b) General Surgery Lectures for Dental Students (6 months).

- (c) Dental Surgery, Lectures (6 months).
- (d) General Pathology and Bacteriology, Lectures (3 months).
- (e) Orthodontics Lectures (3 months).
- (f) Dental Pathology (Practical) (3 months).
- (g) Dental Bacteriology (Practical) (1 month).
- (h) Clinical Dental Surgery (6 months).
- (i) Practical instruction in the administration of the Anæsthetics usually employed in Dental Practice.
- (j) Clinical Medicine and Surgery (at a recognised General Hospital for twelve months).
- (k) The practice of a Dental Hospital or the Dental Department of a General Hospital recognised by the University for a period of two years.

The Examination consists of :—

A Paper in General Surgery and Surgical Diseases of the Mouth, a Paper and Oral Examination in Dental Surgery and Dental Pathology, a Practical Examination at the Dental Hospital.

**NOTE.—**Candidates may be examined :—

- (a) On the treatment of Dental Caries, and may be required to prepare and treat teeth by filling with gold or other material, by inlaying or by crowning, or to do any other operation in Dental Surgery.  
  
(Candidates must provide their own instruments.)
- (b) On the Mechanical and Surgical treatment of the various irregularities of children's teeth.

Candidates must present themselves in *all* the subjects of the Examination, and failure in any one part of the Examination entails failure in all.

Examinations for the Diploma in Dental Surgery are held twice a year, viz., June and December.

### REFERRED CANDIDATES.

Candidates referred at the L.D.S. Examinations are required, before being re-admitted for Examination, to take out additional instruction, for a period of at least three months, subsequent to the date of reference, in the subject or subjects in which they failed to satisfy the Examiners.

The referred instruction shall be of a practical nature in the subjects where practical work forms part of the course.

In Mechanical Dentistry, the referred instruction must be for a period of *six months*, under the conditions specified by regulations.

All Candidates referred at the Final Examination are required to attend additional instruction in Practical Dental Surgery at a recognised Dental Hospital for a period of at least *six months*, in addition to any further referred instruction which the Board of Examiners may require.

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## FEES.

### SCHOOL OF DENTISTRY.

#### Membership Fees.

A Dental Student can either enter as a Composition or Occasional student, *i.e.*, he can pay his fees in two instalments, or as he takes out his classes. Composition students pay a MEMBERSHIP FEE of £5 5s., once for all ; occasional students pay £1 11s. 6d. for each academic year during which they may be in attendance upon lectures. The Membership Fee for three months' attendance is 12s. 6d. The regulations in connection with the attendance of medical students (see page 531) apply also to the Dental Students, whose composition fee, however, covers normally three and not five years.

#### Class Fees.

(i) FOR L.D.S. DIPLOMA.	£	s.	d.
Anatomy Lectures, 1st Summer .. .. ..	..	6	0
Anatomy Lectures, 2nd Summer .. .. ..	..	6	0
Anatomy, Practical, 1st Summer .. .. ..	..	2	6
Anatomy, Practical, 2nd Winter .. .. ..	..	5	0
Anatomy, Practical, 2nd Summer .. .. ..	..	2	6
Physiology Lectures .. .. ..	..	6	0
Physiology, Practical .. .. ..	..	4	0
Chemistry Lectures .. .. ..	..	4	0
Chemistry, Practical .. .. ..	..	3	0
Physics .. .. ..	..	5	0
General Medicine .. .. ..	..	6	0
General Surgery .. .. ..	..	6	0
Dental Anatomy .. .. ..	..	3	0
Dental Surgery .. .. ..	..	3	0
Dental Materia Medica .. .. ..	..	2	0
Dental Mechanics .. .. ..	..	2	0
Dental Metallurgy .. .. ..	..	2	0
Practical Dental Metallurgy .. .. ..	..	2	0
Dental Histology and Pathology .. .. ..	..	2	0
Dental Histology, Practical .. .. ..	..	1	0
Dental Pathology, Lectures .. .. ..	..	1	0
Dental Bacteriology, Practical .. .. ..	..	1	0
<hr/>			
	£	78	15 0

(ii) FOR B.D.S. DEGREE.		£	s.	d
Anatomy Lectures, First Winter	..	..	6	6
Anatomy Lectures, Second Winter	..	..	6	6
Anatomy, Practical, First Winter	..	..	5	5
Anatomy, Practical, Second Winter	..	..	5	5
Anatomy, Second Summer	..	..	3	3
Physiology Lectures	..	..	6	6
Physiology, Practical	..	..	4	4
Chemistry Lectures	..	..	4	4
Chemistry, Practical	..	..	3	3
Elementary Biology	..	..	5	5
Physics	..	..	5	5
Pathology Lectures	..	..	4	4
Pathology Practical	..	..	4	4
Dental Pathology, Lectures	..	..	1	1
Dental Bacteriology, Practical	..	..	1	1
Medicine	..	..	6	6
Surgery	..	..	6	6
Dental Anatomy	..	..	3	3
Dental Surgery	..	..	3	3
Dental Mechanics	..	..	2	2
Dental Metallurgy	..	..	2	2
Practical Dental Metallurgy	..	..	2	2
Dental Materia Medica	..	..	2	2
Dental Histology and Pathology	..	..	2	2
Dental Histology, Practical	..	..	1	1
		£	95	11
				0

### Microscopes.

Dental Students are required to provide themselves with a Microscope approved by the Medical Faculty (see page 534). The instrument with the parts necessary for the course of Practical Physiology costing £8 must be purchased by Diploma students at the commencement of the first summer. The accessories necessary for the courses in Practical Dental Pathology and Dental Bacteriology costing an additional sum of £5 must be purchased at the commencement of the third winter. These sums include the charge for engraving the student's name on the various parts of the instrument.

B.D.S. Degree Students follow the regulations as laid down for Medical Students.

### Composition Fees.

The Composition Fee for the courses required for the L.D.S. of the University, or any of the Corporations alone, is £60, payable in two annual instalments at the commencement of the first and second years; that for the courses required for the L.D.S. and the Degree in Dentistry of the University is £75; that for the L.D.S. in combination with the M.R.C.S. and L.R.C.P. is £85; and that for the M.B., Ch.B., and B.D.S. is £95. All of these composition fees are payable in two annual instalments at the commencement of the first and second years.

Each of these fees covers the cost of the courses given at the University for the qualifications indicated, but does not include fees for Hospital teaching.

### Incidental Fees.

These fees are intended to cover the cost of apparatus, material, etc., used in the various practical classes. They are governed by the same rules as those applying to medical students, and are payable to the Secretary.

	£	s.	d.
Dissecting Room (each Winter) .. .. ..	..	1	11 6
Dissecting Room (each Summer) .. .. ..	..	0	15 9
Practical Physiology .. .. ..	..	2	2 0
Practical Pathology .. .. ..	..	1	11 6
Practical Dental Histology .. .. ..	..	1	1 0

### Examination Fees.

The fees payable before a student is admitted to any of the examinations are set down below. Such fees cannot be returned, but candidates are allowed to repeat any examination on payment of £1.

	£	s.	d.
Matriculation .. .. ..	..	2	0 0
First Examination for B.D.S. or L.D.S. .. ..	..	2	0 0
Second Examination for B.D.S. or L.D.S. .. ..	..	2	0 0
Third Examination for L.D.S. .. ..	..	2	0 0
Final Examination for B.D.S. .. ..	..	9	0 0
Final Examination for L.D.S. .. ..	..	12	0 0
Examination for M.D.S. .. ..	..	10	0 0

### Hospital Fees.

For statement of Hospital Fees payable by Dental students, and of Fees for Apprenticeship in Mechanical Dentistry at the Birmingham Dental Hospital, see page 653.

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### Total Fees for B.D.S.

For the convenience of those desiring to ascertain the total cost of obtaining the License in Dentistry, and the Degree of Bachelor of Dental Surgery in the University, the following table has been drawn up. It presumes that the student enters by the Composition method and makes no allowance for failures at examinations. No allowance is made for the cost of books or instruments, for private tuition (if necessary), or for the fee for apprenticeship.

	£	s.	d.	£	s.	d.
MATRICULATION .. .. ..	..	2	0	2	0	0
FIRST YEAR—Membership Fee ..	..	5	5	0		
Half Composition ..	..	37	10	0		
First B.D.S. Examination ..	..	2	0	0		
				44	15	0
SECOND YEAR—Half Composition ..	..	37	10	0		
Second B.D.S. Examination ..	..	2	0	0		
Second L.D.S. Examination ..	..	2	0	0		
				41	10	0
THIRD YEAR—Dental Hospital ..	..	10	10	0		
A General Hospital ..	..	6	6	0		
Third L.D.S. Examination ..	..	2	0	0		
				18	16	0
FOURTH YEAR—Dental Hospital ..	..	10	10	0		
A General Hospital ..	..	4	4	0		
Final L.D.S. Examination ..	..	12	0	0		
				26	14	0
FIFTH YEAR—A General Hospital ..	..	6	6	0		
Final B.D.S. Examination ..	..	9	0	0		
				15	6	0
				£	149	1 0

## TIME TABLE FOR THE B.D.S. CURRICULUM.

1914—1915.

## FIRST YEAR

SUBJECTS.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
<b>WINTER SESSION.</b>						
*Chemistry Lectures ..	9.30	..	9.30	9.30	..	..
* " Practical & Tutorial ..	2 to 5	..	2 to 5	..	..	..
*Physics Lectures ..	10.30	..	10.30	10.30	..	..
* " Practical ..	{ 11.30 to 1.30 }	..	..	..	..	..
Anatomy Lectures ..	..	9.30	..	..	10.30	..
" Practical ..	..	2 to 5	..	2 to 5	2 to 5	..
" Tutorial ..	..	..	..	..	11.30	..
Elementary Biology Lects.	..	12.30	..	..	12.30	..
" " Practical	.. { 10.30 to 12.30 }	..	..	..	..	..
*Dental Metallurgy Lects.	..	..	..	..	..	9.30
* " " Practical	..	..	..	..	.. { 10.30 to 12.30 }	..
<b>SUMMER SESSION.</b>						
*Chemistry Lectures ..	9.30	..	9.30	9.30	..	..
" Practical and Tutorial ..	2 to 5	2 to 5	..	2 to 5	.. { 9.30 to 12.30 }	..
*Physics Lectures ..	10.30	..	10.30	10.30	..	..
" Practical	{ 11.30 to 1.30 }	..	..	..	..	..
Elementary Biology Lects.	..	9.30	..	..	9.30	..
" " Practical	.. { 10.30 to 1.0 }	..	..	.. { 10.30 to 1.0 }	..	..
Dental Materia Medica, Lectures }	..	..	..	3.0	..	..
Dental Mechanics, Lects.	..	4.0	..	..	..	..

\* This instruction is given at the University Buildings, Edgbaston?

## SECOND YEAR.

SUBJECTS.	Mon.	Tues	Wed.	Thur.	Fri.	Sat.
<b>WINTER SESSION.</b>						
Physiology Lectures ..	10.30	10.30	10.30	10.30	10.30	..
"    Tutorial ..	..	9.30	..	9.30	..	..
"    Experimental } Oct. to Dec.) }	..	..	..	2 to 4	2 to 4	..
"    Chemical } (Jan. to Mar.) }	..	..	..	2 to 4	2 to 4	..
Anatomy Lectures ..	12.0	12.0	12.0	12.0	..	..
"    Tutorial ..	9.30	..	9.30	..	9.30	..
"    Practical {	2 to 5	2 to 3 4 to 5	2 to 5	2 to 5	2 to 4	9 to 12
"    (Embryology) Lecture }	..	3.0	..	..	..	..
Dental Anatomy, Lectures ..	.	..	..	..	4.0	..
<b>SUMMER SESSION.</b>						
Anatomy Lectures ..	10.0	..	10.0	..	10.0	..
"    Tutorial ..	..	9.0	9.0	..	9.0	..
"    Practical ..	4 to 5	2 to 5	2 to 5	2 to 5	2 to 5	9 to 12
Physiology, Practical Histology }	11.0 to 1	11.0 to 1	11.0 to 1	11.0 to 1	11.0 to 1	..
"    Tutorial ..	9.0	..	..	9.0	..	..
Dental Histology, Practical	2 to 4	..	..	..	..	..

## THIRD YEAR.

SUBJECTS.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
<b>WINTER SESSION.</b>						
Dental Hospital Practice	9.0 to 1.0	9.0 to 1.0	9.0 to 1.0	9.0 to 11.30	9.0 to 1.0	..
*Clinical Medicine, Junior Tutorial Class at the Queen's Hospital ..	..	..	..	12.0	..	..
*Clinical Surgery, Junior Tutorial Class at the General Hospital ..	..	..	..	..	..	9.30 to 11.30
General Pathology & Bac. Lectures (Oct. to Jan.)	2.0	2.0	2.0	2.0	2.0	..
" " Practical	3.0 to 5.0	..	..	3.0 to 5.0	..	..
Dental Pathology, Practical (Feb. to Mar.)	..	2.0	..	..	2.0	..
Medicine Lectures (Oct. to Dec.)	..	4.0	..	..	4.0	..
" " (Jan. to Mar.)	..	..	4.0	..	..	..
General Surgery Lectures (Oct. to Dec.)	..	..	4.0	..	..	..
" " (Jan. to Mar.)	..	4.0	..	..	4.0	..
Dental Surgery Lectures	..	..	..	..	3.0	..
Orthodontics, Lectures (Oct. to Dec.)		(Times to be arranged).				
Dental Bacteriology, Practical (Jan. and Feb.)	3 to 5	..	..	3 to 5	..	..
<b>SUMMER SESSION.</b>						
Dental Hospital Practice	9.0	9.0	9.0	9.0	9.0	9.0
Anæsthetic Lectures at the Dental Hospital ..	During May		2.0	..	2.0	..
Clinical Dental Surgery at the Dental Hospital		By arrangement.				
Practical Pathology ..	2.0 to 4	..	..	..	2.0 to 4	..

\* These Classes alternate between the two Hospitals each year.

## FOURTH YEAR.

SUBJECTS.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
<b>WINTER SESSION.</b>						
Dental Hospital Practice	9.0	9.0	..	9.0	..	9.0
Casualty Dressing at General & Queen's Hospitals	..	..	9.0	..	9.0	..
Clinical Medicine, Tutorial Class at Queen's Hospital	..	..	12.0	..	..	..
Clinical Medicine Class at General Hospital	..	..	10.30	..	..	..
<b>SUMMER SESSION.</b>						
Dental Hospital Practice	9.0	9.0	9.0	9.0	9.0	9.0

## FIFTH YEAR.

Instruction in the Clinical Examination of living cases at the Dental Department of the General Hospital .. ..	Six months—by arrangement.
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All Students are requested to take notice that they must attend at least two-thirds of the lectures and practical classes of each course, and that the Schedules of those who do not observe this regulation will not be signed. They must attend the class examinations in Chemistry, Physics, and Biology, and are advised to attend also all other class examinations.

TIME TABLE FOR L.D.S. CURRICULUM.  
YEAR 1914-1915.

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FIRST YEAR.

SUBJECTS.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
WINTER SESSION.						
*Chemistry, Lectures	..	11.30	..	11.30	..	..
*Chemistry, Practical	..	{ 2.0 to 5.0	2.0 to 5.0	..	2.0 to 5.0	..
*Physics, Lectures	..	..	10.30	..	10.30	..
*Physics, Practical	..	..	..	..	..	{ 10.0 to 1.0 and 2.30 to 5.0
*Dental Metallurgy, Lectures	..	..	..	..	..	9.30
*Dental Metallurgy, Practical	..	..	..	..	..	{ 10.30 to 12.30
SUMMER SESSION.						
Physiology (Practical Histology)	..	{ 11.0 to 1.0	11.0 to 1.0	11.0 to 1.0	11.0 to 1.0	11.0 to 1.0
Dental Materia Medica Lectures	..	..	..	..	3.0	..
Dental Mechanics, Lectures	..	..	4.0	..	..	..
Anatomy, Practical	..	{ 9 to 11 3 to 5	9 to 11 3 to 4	9 to 11 2 to 5	9 to 11 4 to 5	9 to 11 2 to 5
Anatomy, Lectures	..	2.0	2.0	..	2.0	..
Pract. Dental Mechanics (at the Dental Hospital)	..		By arrangement.			

\*This instruction is given at the University Buildings, Edgbaston.

## SECOND YEAR.

SUBJECTS.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
<b>WINTER SESSION.</b>						
Dental Hospital Practice	{ 9.0 to 12.0	9.0 to 1.0	9.0 to 12.0	9.0 to 11.30	9.0 to 12.0	..
*Clinical Medicine, Junior Tutorial Class at Queen's Hospital	..	..	..	12.0	..	..
*Clinical Surgery, Junior Tutorial Classes at General Hospital	..	..	..	..	.. {	9.30 to 11.30
Anatomy, Practical	..	3 to 5	2 to 5	2 to 5	3 to 5	2 to 4
Anatomy, Tutorial	..	2.0	..	..	2.0	..
Physiology, Lectures	..	12.15	..	12.15	..	12.15
Human and Comparative Dental Anatomy Lectures	..	..	..	..	4.0	..
<b>SUMMER SESSION.</b>						
Dental Hospital Practice	{ 9.0 to 11.30	9.0 to 11.30	9.0 to 1.0	9.0 to 11.30	9.0 to 1.0	9.0 to 1.0
Dental Histology, Practical	2 to 4	..	..	..	..	..
Anatomy, Practical	..	..	2 to 5	2 to 5	..	2 to 5
Anatomy, Lectures	..	12.0	12.0	..	12.0	..
Anatomy, Tutorial	..	..	3.0	..	3.0	..
Clinical Dental Surgery (at the Dental Hospital)	..	..	By arrangement.			
Anæsthetics, Lectures during May (at the Dental Hospital)	..	..	2.0	..	2.0	..

\*These Classes alternate between the two Hospitals each year.

## THIRD YEAR.

SUBJECTS.	Mon.	Tues.	Wed.	Thur.	Fri.	Sat.
WINTER SESSION.						
Casualty Dressing at General and Queen's Hospitals ..	..	.. {	9.0 to 1.0	.. {	9.0 to 1.0	..
Dental Hospital Practice .. ..	9.0 to 1.0	9.0 to 1.0	..	9.0 to 1.0	..	9.0 to 1.0
Clinical Medicine, Special Clinical Class at General Hospital ..	..	..	10.30	..	..	..
Clinical Medicine, Tutorial Class at Queen's Hospital ..	..	..	12.0	..	..	..
Medicine Lectures for Dental Students (Oct. to Dec.)	..	4.0	..	..	4.0	..
Medicine Lectures for Dental Students (Jan. to Mar.)	..	..	4.0	..	..	..
General Surgery Lectures for Dental Students (Oct. to Dec.)	..	..	4.0	..	..	..
General Surgery Lectures for Dental Students (Jan. to Mar.)	..	4.0	..	..	4.0	..
Dental Surgery, Lectures Orthodontics, Lectures (Oct. to Dec.)	..	..	(Times to be arranged).	..	3.0	..
General Pathology and Bacteriology Lectures (Oct. to Jan.) ..	2.0	2.0	2.0	2.0	2.0	..
Dental Bacteriology, Practical (Jan. and Feb.)	3 to 5	..	..	3 to 5	..	..
Dental Pathology, Practical (Feb. to Mar.)	..	2.0	..	..	2.0	..
SUMMER SESSION.						
Dental Hospital Practice .. ..	9.0 to 1.0	9.0 to 1.0	9.0 to 1.0	9.0 to 1.0	9.0 to 1.0	9.0 to 1.0
Clinical Dental Surgery ( <i>at the Dental Hospital</i> ) ..	..	By arrangement.				

All Students are requested to take notice that they must attend at least two-thirds of the lectures and practical classes of each course, and that the Schedules of those who do not observe this regulation will not be signed. They must attend the class examinations in Chemistry and Physics, and are advised to attend also all other class examinations.

## Syllabus of Lecture Courses.

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### I.—*SPECIAL SUBJECTS.*

#### **DENTAL SURGERY AND PATHOLOGY.**

*Lecturer* : W. THOMPSON MADIN, B.D.S. ; L.D.S., Eng.

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Dental Caries, its causes and treatment.

Preparation of cavities for filling.

Filling of teeth with gold, porcelain, amalgam, and cements.

Diseases of the pulp and their treatment.

Diseases of the periodontal membrane.

Injuries to the teeth.

Diseases of gums and mucous membrane of the mouth.

Odontomes.

Neuralgia.

Secondary affections due to diseased teeth.

Diseases of the antrum.

Necrosis of the jaws.

Swellings about the jaws.

Cleft palate.

Haemorrhage after tooth extraction.

The use of X rays in dental surgery.

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#### **DENTAL MATERIA MEDICA.**

*Lecturer* : (Vacant).

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The drugs and remedies used in dentistry generally.

New drugs as they appear.

Prescribing.

Composition of filling materials.

Anæsthetics : General and local.

## DENTAL ANATOMY AND PHYSIOLOGY.

### Human and Comparative.

*Lecturer :* JOHN HUMPHREYS, M.D.S.; L.D.S.I.; F.L.S., F.S.A.

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The method and use of the study of odontology.

The general and minute structure and composition of the teeth, and their modifications in fishes, reptiles, and mammals.

The arrangement and uses of the teeth of man and typical animals.

Structure of the gum, periosteum, and dental pulp.

Development of the teeth.

Development of the jaws, alveoli, etc., and their anatomical relations.

Mastication and the oral secretions.

This course is fully illustrated by the large collection of skulls, teeth, etc., contained in the Museum, as also by microscopic preparations and drawings, and a series of lantern slides.

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## DENTAL HISTOLOGY AND DENTAL PATHOLOGY.

*Lecturer :* A. W. WELLINGS, M.D.S., L.D.S.

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### I.—DENTAL HISTOLOGY (Lectures and Practical).

The course will be held in the Physiological Laboratory on each Monday throughout the Summer Session, from 2 to 4 p.m.

The technique of microscopical preparation.

The structure and composition of Nasmyth's Membrane, enamel, dentine, and cementum in man

The comparative minute anatomy of the teeth.

The pulp and other soft tissues of the teeth and mouth.

The development of the teeth in man and in some of the lower animals.

## II.—DENTAL PATHOLOGY (Lectures and Practical).

This course will be held in the Pathological Laboratory from February to March, during the Winter Session, on Tuesdays and Fridays, from 2 to 3 p.m.

Enamel, dentine, cementum,—developmental defects and acquired pathological lesions.

Dental caries.

The dental pulp,—hyperæmia, inflammation : injuries and degenerations.

Periodontal membrane,—Inflammatory conditions and tumours.

Pathological modifications of the muco-periosteum.

Oral tumours.

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## DENTAL MECHANICS.

*Lecturer* : A. E. DONAGAN, L.D.S. (Edin.), M.A.  
(Cantab.)

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Introduction and general principles of Prosthetic Dentistry.

Treatment of the mouth preparatory to the insertion of artificial dentures.

Materials used and methods employed in taking impressions of the mouth.

Casting in plaster and metal

Methods of obtaining the correct articulation of the teeth.

**Vulcanite work.**

- (a) The preparation of dental rubber
- (b) Artistic arrangement of teeth.
- (c) Flasking, packing, and vulcanising.
- (d) Clasps and strengtheners.
- (e) Methods of weighting lower dentures.

**Plate and tube work.****Combination work.****Cast metal dentures.****Continuous gum work and section blocks.****Varieties of crown and bridge work.****Mechanical treatment of Fractured Maxillæ.**

The course will be fully illustrated by the exhibition of models, appliances, and diagrams.

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**DENTAL METALLURGY.**

*Feeney Professor :* THOMAS TURNER, M.Sc., A.R.S.M., F.I.C.

*Lecturer :* O. F. HUDSON, M.Sc., A.R.C.S.

*Assistant Lecturer :* (Vacant).

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A course of both theoretical and practical instruction is given in the above subject.

During the Winter Session, twenty lectures are delivered on Saturdays, at 9-30 a.m. These deal with the physical, mechanical, and chemical properties of metals ; oxidation

and reduction; fuel, furnaces and furnace materials; melting, casting and working in metals; the properties of gold, silver, copper, tin, lead, zinc, mercury and other metals, and of alloys and amalgams, so far as they are applied in dentistry.

A Practical Class is held in the Metallurgical Laboratory on Saturdays from 10.30 to 12.30, during the Winter Session, to enable students to perform experiments and operations illustrative of some of the more important subjects dealt with in the lectures.

*The instruction is given at the University Buildings, Edgbaston.*

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## ORTHODONTICS.

*Lecturer:* (Vacant.)

A Course of ten Lectures will be given during the Winter Session, from October to December, at times to be arranged.

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## MEDICINE FOR DENTAL STUDENTS.

*Lecturer:* T. STACEY WILSON, M.D., F.R.C.P.

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Introduction : Aims of medicine, etc.

Diseases of the alimentary system.

Diseases of the circulatory system.

Diseases of the respiratory system.

Diseases of the urinary system.

General diseases.

Summary of special bearings of medicine upon the work of the Dental Surgeon.

## GENERAL SURGERY FOR DENTAL STUDENTS.

*Lecturer*: ALBERT LUCAS, F.R.C.S.

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Inflammation.

Inflammatory affections of buccal cavity.

Specific diseases.

Diseases of bones.

Injuries.

Fractures.

Injuries to blood vessels.

Injuries to nerves.

Injuries to joints.

Injuries to face and neck

Tumours.

Cysts.

Hare-lip and cleft palate.

Affections of maxillary and frontal sinuses.

Affections of salivary glands.

Affections of cervical lymphatic glands.

Enlarged tonsils and adenoids.

Closure of jaws.

Bronchocele.

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## II.—GENERAL SUBJECTS.

Anatomy and Practical Anatomy (p. 546), Physiology and Practical Physiology (p. 549), Chemistry and Practical Chemistry (p. 553), Physics (p. 560), Elementary Biology (p. 564), Pathology and Bacteriology (p. 567). (See Faculty of Medicine.)

## BIRMINGHAM UNIVERSITY DENTAL CLINICAL BOARD.

### INFORMATION AND REGULATIONS CONCERNING HOSPITAL WORK.

## BIRMINGHAM DENTAL HOSPITAL.

The Clinical Instruction at the Dental Hospital is carried out under the direction of the University Dental Clinical Board.

The curriculum is adapted in the first place to meet the needs of the students of the Birmingham University, but it is also well adapted to the requirements of students preparing for examinations of other Universities and Licensing Bodies.

The Dental Hospital is situated in Great Charles Street, within a few minutes walk of the University. It has ample accommodation for the teaching of the practical side of the curriculum for Dentistry.

On the ground floor are a large waiting hall, private rooms for the Hon. Staff and Nurses, Museum and Class rooms, students' cloak-room, lavatories and common room.

On the first floor are a large lecture hall, patients' waiting room, examination and extracting rooms, and the anaesthetic department, consisting of operating room, separate waiting and recovery rooms for male and female patients.

On the second floor are the filling and prosthetic departments, equipped with all the latest requirements for teaching and training dental students in mechanical, prosthetic, and operative work.

The operating chairs are of the latest hydraulic-pump pattern, the front row being fitted with fountain spittoons and saliva ejectors. The electric current is supplied for lighting and motive power for dental engines and lathes ; hot and cold water is laid on in all the departments. The heating of the building is on the low-pressure radiator system.

The Hospital clinic is large and varied, and affords ample opportunity to students to become dexterous in the treatment of teeth and familiar with the varied methods of overcoming the difficulties of their profession.

There is an annual attendance of about 13,000 patients, and the operations average 30,000, including gold and other fillings, and many cases of porcelain inlays, gold and porcelain crowns, bridges, and regulation cases.

The filling rooms have space for forty-five operating chairs.

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**THE DENTAL HOSPITAL STAFF.**

*Dean*—W. THOMPSON MADIN, B.D.S., L.D.S.

**Consulting Physician—**

SIR ROBERT SIMON, M.D., F.R.C.P.

**Consulting Surgeon—**

WILLIAM F. HASLAM, M.B., Ch.B., F.R.C.S.

**Consulting Dental Surgeon—**

FRANK E. HUXLEY, M.R.C.S., M.D.S., L.D.S.

**Dental Surgeons—**

F. W. RICHARDS, L.D.S.

F. H. GOFFE, L.D.S.

A. E. DONAGAN, M.A., L.D.S.

J. MOUNTFORD, L.D.S.

W. T. MADIN, B.D.S., L.D.S.

J. E. PARROTT, L.D.S.

W. M. KNOTT, L.D.S.

G. F. CALE-MATTHEWS, L.D.S.

**Assistant Dental Surgeons—**

A. H. PARROTT, B.D.S., L.D.S.

C. H. HOWKINS, M.R.C.S., L.R.C.P., L.D.S.

S. H. ROE, L.D.S.

A. W. WELLINGS, M.D.S., L.D.S.

W. BOWATER, B.D.S., L.D.S., M.R.C.S., L.R.C.P.

HAROLD ROUND, M.D.S., L.D.S.

**Orthodontics Officer—**G. F. CALE-MATTHEWS, L.D.S.**Anæsthetists—**

S. W. HAYNES, M.D., C.M.

W. J. McCARDIE, B.A., M.B., B.C.

R. H. ROLLINSON WHITAKER, F.R.C.S.

R. W. TAYLOR HADDOW, M.B., C.M.

L. KIRKBY THOMAS, M.R.C.S., L.R.C.P.

H. EWAN WALLER, M.R.C.S., L.R.C.P.

**Demonstrators—**

HUMPHREY F. HUMPHREYS, M.B., Ch.B., B.D.S., L.D.S.

R. A. BRODERICK, M.B., Ch.B., L.D.S.

N. A. AUSTIN, L.D.S.

**Stipendiary Dental Surgeon—**

C. W. RANDALL, L.D.S.

**House Surgeon—**R. L. BOOTH, L.D.S.**Prosthetic Department—**

W. M. KNOTT, L.D.S.

S. H. ROE, L.D.S.

**Demonstrator in Orthodontics—**(Vacant).

## RULES AND REGULATIONS FOR STUDENTS.

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**ADMISSION.**—Students are admitted to the Dental Hospital on the understanding that it is their intention to obtain the Dental Diploma of the University or one of the Royal Colleges of Surgeons of the United Kingdom *cum curriculo*, and shall produce a certificate of registration as a Dental Student by the General Medical Council. They shall also sign their names as willing to conform to these rules and regulations.

**REGISTRATION.**—The Dean of the Dental Hospital will attend at the Dental Hospital during the first week of April and October for the purpose of advising students and for registration. Notice of the times of attendance will be posted up in the University and at the Dental Hospital.

Students are required to bring their certificates of registration as Dental Students.

**ATTENDANCE.**—The Hospital is open daily at nine o'clock (Sundays excepted), and students must attend at that hour unless their attendance is required at one of the general Hospitals or the University.

The Hospital must be attended for two years consecutively irrespective of University vacations.

Leave of absence, when desired, must be obtained (in writing) from the Dean, and a medical certificate supplied in case of illness extending over a week.

An attendance sheet is provided, and students must see that their names are duly entered thereon each day, together with the time of their arrival and departure.

**INSTRUMENTS.**—Every student will be required to obtain Instruments for the Hospital practice before his attendance will be recognised. A list of these will be furnished to each student on entry.

DRESSERSHIPS.—Regular days will be appointed by the Stipendiary Dental Surgeon for each student to attend in the Extracting, Anæsthetics and Conservation Rooms. Cases for treatment, and operating chair, will be allotted to students by the Dental Officers in attendance. Students shall enter all appointments made with patients on the papers provided for this purpose, with the particulars of the operation. Every operation must be carefully registered in the Hospital Books.

REQUIREMENTS OF CURRICULUM.—During the two years' attendance students will be required :—

- (a) To attend preliminary course of instruction.
- (b) To attend as dressers in the extracting and Anæsthetic Rooms.
- (c) To perform filling and other conservative operations.
- (d) To treat at least four regulation cases mechanically.
- (e) To make and insert at least six dentures ; also a minimum of eight crowns, a specified number being of Richmond and collared type.
- (f) To attend the special courses of Clinical Lectures and Demonstrations.

SCHEDULES.—Students are required to apply to the Dean for their Schedules to be signed three months previous to the date of the examination by the Licensing Body, and no schedule will be passed unless the student has given satisfaction in his work and attendance, and acquitted himself satisfactorily at the examinations.

CONDUCT.—Students must consider themselves strictly under the control of the Officers of the Hospital. All unnecessary conversation must be avoided, and quietness and gentlemanly conduct towards the patients observed.

DEMONSTRATIONS.—In the first year instruction in Dental Mechanics and Prosthetics is given during the afternoons. Patients are seen on Tuesday and Thursday afternoons from 2 to 4, and this work may be done during the University vacations.

Attendance is also required at the preliminary three months' course of Demonstrations given during the Summer or Autumn Terms from 9 to 11 a.m. on fixed days by arrangement. No student will be allowed to undertake any operation until he has attended to the satisfaction of the Demonstrators and passed an examination in the subjects studied at the Demonstrations.

The student after having completed the course of demonstrations, and after passing the examination held by the Demonstrators, is appointed a dresser in the Extraction and Conservation Rooms, where he will receive instruction in Operative work.

A six weeks' course of Demonstrations on Practical Dental Mechanics is given to students preparing for their examination in Mechanical Dentistry ; the days and hours are specially arranged. All students are required to attend.

A special course of Demonstrations in Clinical Dental Surgery is arranged for students reading for their final examination. Attendance upon this course is compulsory upon all students.

**OPERATIVE WORK.**—Each student will be required to do examples of the various types of filling in a satisfactory manner.

Plastic filling, amalgam, osteo, and gutta-percha.

Gold filling (Cohesive, non-cohesive and tin).

Inlay Work.

Crown and bridge.

**ORTHODONTICS.**—Each student will keep a record of cases of orthodontic treatment undertaken by him.

Angle's classification is used, and students are required to undertake cases in Classes I. and II. and their subdivisions.

The mechanical appliances must be made at the Hospital.

**ANÆSTHETICS.**—A course of six Lectures on the Administration of Anæsthetics is given each year during May. Each student also receives instruction for at least one day

per week from four to six months in extracting under anaesthetics under the Dental Officers in charge of the anaesthetic rooms.

Each student receives instruction in the administration of Nitrous Oxide for at least twelve mornings (three months) from one of the Hon. Anæsthetists.

**MECHANICAL AND PROSTHETIC WORK.**—This department is open Monday to Friday from 9 a.m. to 6 p.m., Saturday 9 a.m. to 1 p.m., for making, under the supervision of a skilled teacher, dentures and regulating appliances.

Students will be appointed to attend in rotation by the Senior Honorary Officer of the Department.

Pupils are taken for the necessary two years' instruction in mechanical work. Application for particulars to be made to the Dean.

**EXAMINATIONS.**—Annual Compulsory Examinations are held to test the progress of students ; they are arranged as follows :—

*First Year.*

- 1.—Preliminary work, extractions and simple fillings at end of Demonstrator's course.
- 2.—Series of specimens of mechanical work, and mechanical examination.
- 3.—Operative work at the end of the first year.

*Second Year.*

- 1.—Advanced work in root treatment, fillings, crowns and inlays.
- 2.—Regulation cases, models, and appliances, illustrating the student's work.
- 3.—Examination in Anæsthetics and Operations.
- 4.—Ash's Prize for a special essay.

A Prize with a Certificate will be awarded in each of the above sections if sufficient merit is shown, and the manner in which students perform the duties of their dresserships, and the regularity of their attendances will be taken into consideration in awarding the same. Other special prizes are also awarded.

## F E E S.

## I—Dental Hospital Fees.

	Guineas.
For Two Years' Dental Hospital Practice .. ..	20
<i>Payable in two instalments of 10 guineas each at the commencement of the first and second (Hospital) years respectively.</i>	
For Two Years' Mechanical Pupilage .. ..	85
<i>(May be paid in two annual instalments of 50 and 35 guineas respectively.)</i>	
<i>Mechanical Pupils may join for a probationary period of one month, fee 5 guineas, which is deducted upon payment of the full amount.</i>	

## Referred Fees.

	Guineas.
For Six Months' Dental Hospital Practice .. ..	7
For Three Months' Dental Hospital Practice .. ..	4
For Six Months' Mechanical Work .. ..	20
For Twelve Months' Mechanical Work .. ..	35

## II—Fees for attendance at the General and Queen's Hospitals.

For General Surgical Hospital Practice, Lectures, and Demonstrations :—

	£ s. d.
SURGERY—Two Winters .. .. .. ..	10 10 0
<i>Payable in two instalments of 6 and 4 guineas at the commencement of the first and second (Hospital) year respectively.</i>	
SURGERY—One Winter .. .. .. ..	6 6 0
SURGERY FOR B.D.S.—Six Months .. .. .. ..	6 6 0

All the above Fees for attendance at the Dental Hospital and the General and Queen's Hospitals are payable in advance to the Secretary of the University (cheques should be drawn in favour of Mr. Geo. H. Morley).

UNIVERSITY DENTAL CLINICAL BOARD.

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MR. F. W. RICHARDS, *Chairman*

PROFESSOR PETER THOMPSON, *Dean of the Medical Faculty.*

MR. W. THOMPSON MADIN, *Secretary.*

MR. A. E. DONAGAN.

MR. JAMES MOUNTFORD.

MR. J. ERNEST PARROTT.

MR. A. W. WELLINGS.

*Clerk to the Board:* A. H. MARSTON.

UNIVERSITY OF BIRMINGHAM  
MEDICAL SOCIETY

WITH WHICH IS INCORPORATED THE  
QUEEN'S COLLEGE MEDICAL SOCIETY.

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*President*: DR. STANLEY BARNES.

*Hon. Treasurer*: MR. B. A. LLOYD.

*Hon. Secretary*: DR. L. BALL

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This Society was founded at the Queen's College in 1877, J. H. Palmer, Esq., being the first President. It is thus the oldest Society in the University, and has had a career of considerable usefulness. Membership is limited to past and present members of the Birmingham Medical School and to past and present residents and teachers of the General and Queen's Hospitals and allied Teaching Hospitals. Meetings are held every alternate Wednesday, at 8 p.m., in the Founder's Room, University Club, when patients, morbid specimens, instruments, etc., are exhibited, and papers read. The annual meeting takes place in October, when the retiring President gives an address. The object of the Society is especially to aid students in their medical studies.

The annual subscription is 2s. 6d., payable to the Treasurer.

## DENTAL STUDENTS' SOCIETY.

*President* : A. H. PROCTER, L.D.S.

*President-Elect* : HUMPHREY F. HUMPHREYS, M.B., CH.B.,  
B.D.S.

*Vice-President* : E. VAUGHAN TOMEY, L.D.S.

*Hon. Secretaries* : R. P. GRAHAM and A. YOUNGSON.

*Hon. Treasurers* : S. H. RHODES and D. G. LEVASON.

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This Society was founded in 1886, and holds its meetings in the New Dental Hospital, Great Charles Street, once a fortnight during the Winter Term. The membership roll numbers over 100, and comprises past and present members of the Birmingham Dental School and the officers of the Dental Hospital.

The Society is, however, essentially a Students' Society, its object being primarily "the furtherance of Dental Science," by means of the reading of papers, casual communications and the exhibition of living cases by students at the meetings. But combined with this object is another—that of promoting, to some extent at least, social life amongst its members in the University, and of serving as a connecting link between the now busy practitioner and his "alma mater." With this motive there are held annually a dinner, a conversazione, and a picnic in the summer, while two evenings are usually given up to debates or lantern exhibitions.

Every Dental Student should become a member of the Society, as he thereby meets members of the Dental profession in Birmingham, and derives much pleasure and valuable knowledge not to be gained from text books.

There is a prize, value Three Guineas, awarded annually by the Midland Dental Manufacturing Company, for the best paper read before the Society.

## QUEEN'S MEDICAL MAGAZINE.

*Hon. Secretary* : E. GORDON ALLDRIDGE.

*Chairman of Editorial Board* : A. P. THOMSON.

*Hon. Treasurer* : CYRIL A. RAISON.

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This Magazine, founded in May, 1895, is published twice a term, *i.e.*, six times a year. The contents consist of short articles dealing with subjects, medical or otherwise, likely to be of interest to the students generally—reports on interesting hospital cases, and proceedings of various Medical Societies, athletic news, and general gossip of the Medical School. The object of the Magazine is to form a connecting link between the various sections of the Birmingham Medical School, and between past and present students. The subject matter is arranged as far as possible in accordance with this idea. It is the official organ of the Medical Students' Union ; and is supplied free to members of the Union, the subscription to which is 2s. 6d. per annum. The Magazine may be obtained by non-members, subscription 2s. 6d. per annum. post free, on application to the Hon. Secretary.

Contributions or correspondence should be sent to the Hon. Secretary, addressed to the University Club.

# DAY TRAINING COLLEGE.

*FOR THE TRAINING OF TEACHERS IN PUBLIC ELEMENTARY SCHOOLS.*

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**Master of Method (Men) :**

R. A. JONES, B.A. (Cantab.), M.A. (Lond.).

*Assistants :*

FRANK THORNLEY, B.A.

ERNEST S. WHITWORTH, M.Sc.

ARNOLD GRIFFIN.

*Medical Officer :* WALTER R. JORDAN, M.D.

**Head Mistress (Women) :**

MARY S. LILLEY, B.A. (Lond.), M.A. (Columb.).

*Assistants :*

FLORENCE C. M. CLARK, B.A. (Lond.).

MILDRED F. FIELD, B.A. (Lond.).

EDITH M. HENLEY, B.A. (Lond.).

LILY HARRISON, Nat. Sc. Tripos (Camb.).

DOROTHY BOTT.

*Medical Officer :* VIOLET A. P. COGHILL. M.B., Ch.B. (Edin.).

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# DAY TRAINING COLLEGE.

In connection with the University there is a Training College, with departments for men and women, constituted under the regulations of the Board of Education, with the object of preparing students to become certificated teachers in Public Elementary Schools.

Courses are arranged for (1) Three Year students intending to take degrees, (2) Two Year students, (3) Certificated students, who may take either a One Year or

a Two Year Course, and (4), Graduates, for a One Year Course. Preference is given to Three Year students.

Before applying for admission candidates should acquaint themselves with the Regulations for the Training of Teachers for Elementary Schools, published by the Board of Education, price 6d., obtainable through any bookseller.

All students pursue a course which may be divided into two parts, consisting of General Subjects and Professional Subjects. As a rule, the General Subjects are provided for by the University, while students receive their professional training in the form of—

- (a) Lectures on the theory and practice of Teaching, and School Hygiene ;
- (b) Practice under supervision in certain of the Council Schools of the City ;
- (c) Criticism and demonstration lessons ;
- (d) Courses in Reading, Music, Handwork, Physical Training, and Drawing.

NOTE.—Education may be taken as one subject qualifying for a degree.

During residence an annual grant of £25 in the case of men, and £20 in the case of women, is received from the Board of Education. From this sum is deducted the University fee, amounting annually to £11 11s. od. (men) and £10 10s. od. (women). The remainder serves as a contribution towards the cost of board and lodging, books, examination fees, etc.

Students must reside with parents or guardians, or in lodgings approved by the Master of Method or the Head Mistress, who exercise general supervision over their conduct and studies.

Intending candidates should apply for forms of application and other particulars to—

MR. R. A. JONES (*Men*),

MISS M. S. LILLEY (*Women*),

*The University of Birmingham.*

## REGULATIONS FOR OFFICIAL DEGREES OPEN TO MEMBERS OF THE TEACHING STAFF OF THE UNIVERSITY.

Any Lecturer, Assistant Lecturer, or Demonstrator may, on the recommendation of his Professor, apply for an Official Degree in the Faculty in which he teaches, provided that at the date of the Degree Congregation at which the degree would be conferred he shall have completed two complete academic years of service in the position he holds. Such candidates for Official Degrees are required to submit copies of their contributions to Science, Literature, or Medicine, or a Thesis specially prepared for the occasion. These papers will be submitted to Assessors, one of whom shall be an external examiner, and in the event of a Thesis having been submitted, the Assessors will be at liberty to question the candidate upon it, should they think fit, or to call upon him to pass any examination they may think proper. On the report of the Assessors the Faculty will decide in each case whether they will recommend the Senate to nominate the candidate for a degree.

Candidates who have no degree may be admitted in the first instance to the Degree of Bachelor only.

Candidates who already possess a degree may be admitted to such degree as the Faculty may decide, upon the report of the Assessors appointed to examine the credentials which they submit.

There will be no fees required for these official degrees.

These regulations do not apply to members of the teaching staff of the Day Training Colleges for Teachers.

N.B.—Members of the Junior Staff who have received one Degree under the foregoing Regulations are required to compete for higher Degrees on the same terms as other graduates of the University and pay the usual fees, but they are not required to attend lectures or other courses of study in preparation for a higher Degree.

*Forms of application may be obtained from the Registrar, and should be returned to him with two typewritten or printed copies of the Thesis on or before May 3rd.*

## REGULATIONS FOR AD EUNDEM DEGREES.

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Graduates of other Universities may, under certain conditions, be admitted to Ad Eundem Degrees in Arts and Science, namely, B.A. and B.Sc. This privilege is limited to persons who have been in some way specially connected with the University, and persons who are residents in the City and Midland district. The original Degrees on which the candidates base their application must have involved a course of study at a University or University College of the same length as is required for the corresponding Degree in Birmingham. Each individual case will be specially considered by the Senate, and if recommended must be confirmed by the Council. A candidate holding the Degree of B.A. or M.A. of another University will only be eligible to receive the Degree of B.A. in this University, and a candidate holding a Degree of B.Sc., M.Sc., or D.Sc. of another University will only be eligible to receive the B.Sc. Degree of this University. A fee of £5 will be charged.

Holders of Ad Eundem Degrees will be eligible to become members of the Guild of Graduates, but will not be eligible to proceed to higher degrees, except under the ordinary Regulations for Graduates of other Universities.

*Applications for the above degrees, with full particulars of the candidate's qualifications, should be addressed to the Registrar, The University, Birmingham.*

## CONSTITUTION OF THE GUILD OF GRADUATES.

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1.—The Officers of the Guild shall be a Chairman, Vice-Chairman, Honorary Secretary and Assistant Honorary Secretary, elected as under Clause II.

2.—The Guild may delegate any of its powers to committees, except the election of Representatives on the Court of Governors and of its own Officers.

3.—There shall be a Standing Committee whose duty shall be to transact the general business of the Guild. This Committee shall consist of the Officers of the Guild for the time being, and four other members elected as under Clause II, together with those Representatives of the Guild on the Court of Governors who are not included in the above. Each Faculty shall be represented on this Committee.

Vacancies on the Standing Committee may be filled by the Committee itself pending the annual election of members.

4.—Together with the notices of the Annual General Meeting, a printed report shall be issued by the Secretary, which report shall contain :—

- (a) An account of the Guild Meetings held during the past year, and general statistical information.
- (b) A summary of the work done by the retiring Committee, together with a record of attendances at Committee meetings.
- (c) A signed report by the Representatives of the Guild on the Court of Governors.
- (d) A Financial Statement.

5.—There shall be two Ordinary Meetings of the Guild in each year : one, the Annual General Meeting, to be held in November, and one on Degree Day.

6.—Extraordinary Meetings of the Guild may be called by the Standing Committee, or by the Officers of the Guild, or by the Secretary on the receipt of a request signed by twenty members of the Guild, such request to state the business proposed to be transacted.

7.—Twenty members of the Guild shall constitute a quorum.

8.—At all meetings of the Guild the Chairman shall have a second or casting vote. Except in the election of Representatives on the Court only those can vote who are present at the meetings of the Guild.

9.—Members wishing to bring forward any business at meetings of the Guild must notify the Secretary at least three weeks before the date of such meeting.

10.—Three weeks before the Annual General Meeting the Secretary shall notify members of the Guild of the date of the meeting, the vacancies on the Court of Governors that are to be filled, and all other proposed business. With this notice shall be sent voting papers for the election of Representatives on the Court, and the nominations of the Committee for the officers and other members of the Committee for the ensuing year. Any additional nominations, other than for Representatives on the Court, having the support of four members, should be received by the Secretary at least twenty-four hours before the meeting.

11.—The election of the Officers and other Members of the Standing Committee shall be by ballot at the Annual General Meeting. Votes shall be counted by scrutineers appointed by the meeting, and such scrutineers shall be members who are not nominated for election.

12.—The election of Representatives on the Court of Governors shall be by the voting papers, which must be returned to the Secretary at least twenty-four hours before the Annual General Meeting. Members shall have

the option of voting for others than the nominees of the Committee. The counting shall be in the hands of the Officers of the Guild, who shall declare the results at the meeting.

13.—The Representatives on the Court of Governors shall be elected for a term of three years. Two shall retire each year, one of whom shall not be eligible for re-election till after the lapse of twelve months. If both are re-nominated, only the one who receives the greater number of votes shall be re-elected.

If any Representative resign before the lapse of his term of office, the vacancy shall be filled by the Standing Committee for the remainder of that term.

14.—All sums of money received as entrance fees, subscriptions, or otherwise, shall be paid over to the Honorary Secretary, who shall act as Treasurer. With this exception the funds of the Guild shall be in the hands of two Trustees, who, after setting apart such a sum as may be judged by the Committee or its Officers to be necessary to meet current expenses, shall invest them, as they shall agree, in their names conjointly, for the benefit of the Guild. Any vacancy occurring in the trusteeship shall be filled by the Committee until the next annual Business Meeting, when the selection shall be confirmed or otherwise, by the Guild.

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*Every person who has been admitted to a Degree in any Faculty is at once eligible to be a life member of the Guild of Graduates on payment of an entrance fee of 10s.*

**Officers and Committee of Guild of Graduates,  
1914.**

*Chairman* : F. D. CHATTAWAY, D.Sc.

*Vice-Chairman* : PROF. C. E. MARTINEAU, M.Com.

*Honorary Secretary* : F. E. WILLCOX, M.Sc.

*Assistant Hon. Secretary* : MRS. HATFIELD  
*(née FRANCES M. GIBSON).*

*Committee :*

MISS LORNA M. HARRIS, B.A.

HENRY W. WEBB, B.Sc.

J. CARTLAND, M.Sc.

J. W. PARKES, M.Sc.

*Representatives of the Guild on the Court of Governors :*

F. D. CHATTAWAY, D.Sc.

MISS WINIFRED LEE, M.A.

MRS. G. A. SHAKESPEAR, D.Sc.

LESLIE H. LAMPITT, M.Sc.

T. SLATER PRICE, D.Sc.

R. BEATSON HIRD, M.D.



## HONORARY GRADUATES.

LL.D.

1909.

- William Nicholas Atkinson.  
 The Right Honourable Arthur James Balfour.  
 Bernard Bosanquet.  
 Henry Trentham Butlin.  
 Andrew Carnegie.  
*The Right Honourable Joseph Chamberlain.*  
 Sir William Crookes.  
 Maurice Fitzmaurice.  
*Henry Hartley Fowler, Viscount Wolverhampton.*  
 Sir Archibald Geikie.  
 The Right Reverend Charles Gore, Lord Bishop of Birmingham.  
 The Right Honourable Richard Burdon Haldane.  
 John Scott Haldane.  
 James Rendell Harris.  
 Sir Charles Holcroft, Bart.  
*George James Johnson.*  
 Sir Alexander Blackie Kennedy.  
 Professor Sir Joseph Larmor.  
 The Right Honourable Walter Hume Long.  
 Professor Gilbert Murray.  
 Sir Richard Douglas Powell.  
 Professor Sir William Ramsay.  
 John William Strutt, Baron Rayleigh.  
 Professor Ernest Rutherford.  
 Arthur Shadwell.  
 Eleanor Mildred Sidgwick.  
*Donald Alexander Smith, Lord Strathcona and Mount Royal.*  
 Professor Silvanus Phillips Thompson.  
 Sir William Augustus Tilden.  
 Professor Sir Joseph John Thomson.  
 Charles Sissmore Tomes.  
 Thomas Herbert Warren.  
 Sir Bertram Coghill Alan Windle.

1911

- The Right Honourable Sir Joseph Ward  
Bryom Bramwell.  
The Right Honourable John Burns.  
Russell Henry Chittenden  
Sir Francis Henry Lovell.  
James Alexander Macdonald.  
Hermann Oppenheim.  
Richard Andrews Reeve.  
Paul Strassmann.  
German Sims Woodhead.

1912.

- William Edward Garforth

1913.

- Svante August Arrhenius.  
Marie Skłodowska Curie.  
Franz Karl Julius Keibel.  
Hendrik Antoon Lorentz.  
Robert Williams Wood.
-

## GRADUATES.

*The asterisk denotes Members of the Guild of Graduates.*

## FACULTY OF SCIENCE.

## D.Sc.

				Date of Degree.
Allan, George Edwin	..	..	..	1903
Aston, Frederick William	..	..	..	1914
Barlow, Guy	..	..	..	1912
*Barnes, Arthur Stanley	..	..	..	1906
*Bayliss, Jessie Sproat (Mrs. W. T. Elliott)	..	..	..	1908
Boulenger, Charles Leopold	..	..	..	1912
*Buller, Arthur Henry Reginald	..	..	..	1903
*Coales, John Dennis	..	..	..	1908
Fisher, William Ernest	..	..	..	1911
*Fournier d'Albe, Edmund Edward	..	..	..	1913
*Friend, John Albert Newton	..	..	..	1910
Gibson, Walcot	..	..	..	1907
*Harris, David Fraser	..	..	..	1911
*Imms, Augustus Daniel	..	..	..	1907
*Keene, Horace Borton	..	..	..	1914
*Lapworth, Herbert	..	..	..	1906
Levy, Donald	..	..	..	1913
Lotka, Alfred James	..	..	..	1912
*McCombie, Hamilton	..	..	..	1913
*Millar, James Hill	..	..	..	1909
*Miller, James	..	..	..	1904
*Phillips, Percy	..	..	..	1907
*Price, Thomas Slater	..	..	..	1903
*Sand, Henry Julius Salomon	..	..	..	1905
Shakespear, Gilbert Arden	..	..	..	1912
*Slator, Arthur	..	..	..	1906
Stoward, Frederick	..	..	..	1911
*Stuart, Murray	..	..	..	1912
*Tinkler, Charles Kenneth	..	..	..	1908
Todd, George William	..	..	..	1913
*Twiss, Douglas Frank	..	..	..	1910
*Watts, Francis	..	..	..	1904
*West, George Stephen	..	..	..	1908

## D.Sc.

					Date of Degree.
*Wood, Ethel Mary Reader (Mrs. G. A. Shakespear) ..	..	..	..	..	1905
Wright, William ..	..	..	..	..	1904

## M.Sc.

*Acton, Elizabeth ..	..	..	..	..	1909
*Adams, Ernest Bryan ..	..	..	..	..	1912
Alexander, Connel William Long ..		..	..	..	1905
Anderson, Edward Bertram ..	..	..	..	..	1908
Andrew, Arthur Robert ..	..	..	..	..	1906
*Bailey, Clement William ..	..	..	..	..	1911
*Barling, Gilbert ..	..	..	..	..	1901
Barrow, Fred ..	..	..	..	..	1904
*Bastable, Ralph Douglas ..	..	..	..	..	1914
Bayliss, Ralph Garratt ..	..	..	..	..	1914
*Beardsmore, Tom Archibald ..	..	..	..	..	1914
Brain, Charles Kimberlin ..	..	..	..	..	1914
*Brazier, Sidney Albert ..	..	..	..	..	1911
<i>Bridge, Thomas William (the late)</i> ..		..	..	..	1901
*Briscoe, Frederick John ..	..	..	..	..	1912
*Broscomb, Frederick James ..	..	..	..	..	1914
*Brown, Adrian John ..	..	..	..	..	1901
Burstall, Frederick William ..	..	..	..	..	1901
*Cadman, John ..	..	..	..	..	1909
*Carlier, Edmond William Wace ..	..	..	..	..	1901
Carter, Alfred Henry ..	..	..	..	..	1901
*Carter, Sydney Raymond ..	..	..	..	..	1912
Chadwick, Percival Miller ..	..	..	..	..	1914
*Chamberlain, Charlotte ..	..	..	..	..	1903
Clubb, Donald ..	..	..	..	..	1912
*Collinge, Walter Edward ..	..	..	..	..	1903
Cox, Arthur Hubert ..	..	..	..	..	1905
Creighton, Henry Germain Maude ..	..	..	..	..	1909
Crowther, Horace Leslie ..	..	..	..	..	1913
*Denning, Arthur du Pré ..	..	..	..	..	1903
*Dixon, Stephen Mitchell ..	..	..	..	..	1906
*Done, Edward ..	..	..	..	..	1904
Douglas, James Sholto Cameron ..	..	..	..	..	1913
*Everest, Arthur Ernest ..	..	..	..	..	1910

<i>M.Sc.</i>				Date of Degree.
*Farmer, Robert Crosbie ..	..	..	..	1903
Finney, Ada Maria ..	..	..	..	1913
Finney, Arthur Frederick ..	..	..	..	1913
Flint, Henry Thomas ..	..	..	..	1912
<i>Foxwell, Arthur (the late)</i> ..	..	..	..	1901
Frankland, Edward Percy ..	..	..	..	1911
*Frankland, Percy Faraday ..	..	..	..	1901
*Gamble, Frederick William ..	..	..	..	1910
*Garner, William Edward ..	..	..	..	1912
Gebhard, Norman Leslie ..	..	..	..	1903
German, George Arthur ..	..	..	..	1913
Goodey, Tom ..	..	..	..	1909
Griffiths, Benjamin Millard ..	..	..	..	1909
*Grove, Alfred John ..	..	..	..	1908
Groves, Clarence Richard ..	..	..	..	1912
Hardaker, Walter Henry ..	..	..	..	1910
*Hawkins, Edwin Sidney ..	..	..	..	1914
Hawley, Herbert ..	..	..	..	1911
*Heath, Robert Samuel ..	..	..	..	1901
*Hickmans, Evelyn Marion ..	..	..	..	1906
*Hill, Bostock Alfred ..	..	..	..	1901
<i>Hillhouse, William (the late)</i> ..	..	..	..	1901
Hood, Olive Eléanora ..	..	..	..	1910
Hopkins, Graeme ..	..	..	..	1914
*Horton, Frank ..	..	..	..	1901
*Hudson, Oswald Freeman ..	..	..	..	1908
*Hummel, Frank Harvey ..	..	..	..	1906
*Johnson, Gilbert Ernest ..	..	..	..	1911
Kapp, Gisbert ..	..	..	..	1906
*King, George ..	..	..	..	1912
Kipps, Edgar John ..	..	..	..	1908
*Lampitt, Leslie Herbert ..	..	..	..	1909
*Lapworth, Charles ..	..	..	..	1901
Lea, Frederick Charles ..	..	..	..	1914
Lea, Henry Turner ..	..	..	..	1913
*Leith, Robert Francis Calder ..	..	..	..	1901
*Lloyd, John Alexander ..	..	..	..	1901
<i>Lloyd, Jordan (the late)</i> ..	..	..	..	1902
*Lodge, Oliver ..	..	..	..	1901

<i>M.Sc.</i>			Date of Degree.
Lowe, Harold Newton	..	..	1909
Lulofs, Warner	..	..	1908
Malins, Edward	..	..	1901
Mason-Jones, Archibald John	..	..	1907
May, Bennett	..	..	1901
Meggitt, Frederick Joseph	..	..	1913
*Merritt, Onera Amelia (Mrs. R. J. J. Hawkes)	..	..	1903
*Morgan, Caroline Edith	..	..	1903
Morrison, James Thomas Jackman	..	..	1901
*Murray, Thomas Jenkins	..	..	1908
*Norton, Harold Richard	..	..	1908
*O'Sullivan, Hugh Henry	..	..	1910
Panton, Robert Claude	..	..	1914
Parkes, John Wilfrid	..	..	1912
*Parry, Ethel (Mrs. F. E. Oates)	..	..	1907
Parry, Matthew Croose	..	..	1910
Pearson, Stanley	..	..	1913
*Poulton, Ethel Maud	..	..	1911
*Povey, Sydney Douglas	..	..	1914
*Poynting, John Henry	..	..	1901
*Purser, John	..	..	1910
Reade, Thomas Harold	..	..	1913
*Redmayne, Richard Augustine Studdert	..	..	1902
Roberton, Edward Heton	..	..	1904
*Saundby, Robert	..	..	1901
Scarborough, Harold Archibald	..	..	1914
*Shen, Bucchok	..	..	1911
*Silvester, Clara Emily	..	..	1907
*Smith, Cades Alfred Middleton	..	..	1910
*Smith, Charles Gordon	..	..	1907
*Smith, Henry Edgar	..	..	1911
*Smith, Priestley	..	..	1901
Smith, Stanley	..	..	1913
*Stanford, Robert Viner	..	..	1907
Stanton, Herbert Julian	..	..	1907
*Starkey, Clara Beatrice	..	..	1911
Stirrup, Henry Harold	..	..	1913
<i>Taylor, John William (the late)</i>	..	..	1901
*Taylor, Joseph Andrew	..	..	1905

<i>M.Sc.</i>				Date of Degree.
*Thompson, Herbert Bryan	..	..	..	1904
Till, William Compton	..	..	..	1912
*Tunstall, James Charles Francis	..	..	..	1912
*Turner, Thomas	..	..	..	1902
*Turner, William Ernest Stephen	..	..	..	1904
*Twigg, Elinor Adeline Nicolina	..	..	..	1903
Ward, Percy James	..	..	..	1913
*Warth, Frederick John	..	..	..	1903
*Watts, William Whitehead	..	..	..	1902
Webb, Harry William	..	..	..	1914
<i>Whitcombe, Edmund Bancks (the late)</i>	..	..	..	1901
*White, Charles Arthur	..	..	..	1906
*Whitehouse, Richard Henry	..	..	..	1909
Whitworth, Ernest Stanley	..	..	..	1912
*Willcox, Frank Ernest	..	..	..	1903
Woolf, Flora Gwendoline	..	..	..	1913
*Wynn, William Henry	..	..	..	1901

*M.Sc. IN ENGINEERING.*

Adams, Victor Hugh	..	..	..	1912
*Allcut, Edgar Alfred	..	..	..	1909
*Asdell, John Henry	..	..	..	1910
Barlow, Thomas Morgan	..	..	..	1907
Blackmore, Ernest Wilfrid	..	..	..	1913
*Crowther, Oswald Hubert	..	..	..	1914
*Currall, Edward Percy	..	..	..	1911
*Gifford, Randolph Douglas	..	..	..	1909
*Lavender, Frederic Henry Reakes	..	..	..	1909
Loble, Henry Denzil	..	..	..	1911
*Morgan, Frank Leslie	..	..	..	1913
*Nadejde, Horia Ioan	..	..	..	1912
*Ottewell, Barry	..	..	..	1911
*Poynting, Arthur	..	..	..	1909
Ridsdale, John Langford Disturnal	..	..	..	1911
Shaban, Imam	..	..	..	1913
Stewart, James Gibb	..	..	..	1911
*Villiers, Percy William	..	..	..	1910
*Watson, Ernest Ansley	..	..	..	1909
Wilkins, Frank Trevor	..	..	..	1914

## M.Sc. IN METALLURGY.

			Date of Degree.
Austin, George Wesley	..	..	1912
Brown, Reginald Arthur	..	..	1912
Bruhl, Paul Theodor	..	..	1911
*Cartland, John	..	..	1911
Chamberlain, John Harold	..	..	1912
*Coe, Henry Ivor	..	..	1910
Dunn, Ralph John	..	..	1913
*Ewen, Donald	..	..	1910
Hague, Arthur	..	..	1910
*Haughton, John Leslie	..	..	1911
*Heathcote, Henry Leonard	..	..	1914
*Johnson, Fred	..	..	1910
Murray, Myles Thornton	..	..	1909
*Scott, Gilbert Shaw	..	..	1907

## M.Sc. IN MINING.

Briggs, Henry	..	..	..	1911
Hafiz, Abdul	..	..	..	1908
Ridsdale, Harold Hyde	..	..	..	1913
*Sen, Ajit Mohan	..	..	..	1909

## B.Sc

Ahmad, Abdel Hameed	..	..	..	1914
*Andrews, William Archibald	..	..	..	1914
*Ashford, Florence (Mrs. W. H. Wynn)	..	..	..	1902
*Atchison, Arthur Francis Turnour	..	..	..	1903
Ault, Wilfred Beaumont	..	..	..	1904
Bach, Mary Gertrude	..	..	..	1903
Badger, Alfred Bernard	..	..	..	1904
Bagnall, Howard Henry	..	..	..	1914
*Baker, Lily Gertrude	..	..	..	1909
*Baker, Thomas James	..	..	..	1906
Balcon, Samuel	..	..	..	1913
*Bampton, James Henry	..	..	..	1908
Barnes, James Hector	..	..	..	1904
Beach, Agnes	..	..	..	1911
*Beach, Mary	..	..	..	1907
Bentley, Frank Thomas	..	..	..	1912

<i>B.Sc.</i>			Date of Degree.
*Blackburn, Alfred Brown Ernest	..	..	1905
*Blackwell, Norman George	..	..	1906
Bliss, Ernest William	..	..	1908
Borlase, Edward Thomas	..	..	1907
Boulton, William Savage	..	..	1902
Boyer, George Edward	..	..	1902
Bristow, Ernest	..	..	1905
*Bromwich, William Thomas	..	..	1911
*Buchanan, Carmen Davey	..	..	1910
Burrows, Winifred	..	..	1909
Bushill, Frances Mary	..	..	1913
Caudle, Albert Grainger	..	..	1913
*Chambers, Gwendoline Ethel Maud	..	..	1910
Chambers, Stanley Walter Graham	..	..	1911
*Chattaway, Frederick Daniel	..	..	1902
Chen, Ting Chi	..	..	1913
Cheng, Pinzen	..	..	1914
Clarke, Albert Ernest	..	..	1908
*Clough, George William	..	..	1901
Cluley, John Ernest	..	..	1911
*Cooksey, Wilfrid Maurice	..	..	1912
Cooper, Philip Alan	..	..	1913
*Coltart, William Laurie	..	..	1903
Cuthbertson, Hilda	..	..	1907
*Damon, William Æthelbert	..	..	1910
Davis, Herbert Valentine	..	..	1907
*Deeley, Criss Parsonage	..	..	1906
Denby, Sara Kate	..	..	1913
Dennett, Stephen Hepworth	..	..	1913
Dixon, Gertrude Mary	..	..	1908
Dyche-Teague, Frances Clifford	..	..	1907
*Edginton, Elsie Winifred	..	..	1909
Edmunds, Harold William	..	..	1911
*Edwards, Lawrence Wright	..	..	1908
*Ehrhardt, Ernest Francis	..	..	1902
*Ehrhardt, Herbert Wilfrid	..	..	1913
*Elite, Walter	..	..	1914
*Elsdon, George Davidson	..	..	1909
Elwell, John Batty	..	..	1912

<i>B.Sc.</i>			Date of Degree.
Ensor, Ainslie Jackson ..	..	..	1906
Essex, Robert ..	..	..	1910
Evans, Harold Edward ..	..	..	1913
Evans, Horace George ..	..	..	1909
Findley, Albert Edward ..	..	..	1907
Ford, Jessie Thompson ..	..	..	1911
Ford, Grace Winifred ..	..	..	1913
Gadd, Caleb Herbert ..	..	..	1911
Galloway, Mabel ..	..	..	1907
Garner, Frederick Horace ..	..	..	1914
Garratt, Harry ..	..	..	1908
Gedye, Nicholas George ..	..	..	1901
Gee, John Hargrave ..	..	..	1910
*George, Lilian Emilie ..	..	..	1904
Goddard, Archibald Edwin ..	..	..	1914
Gordon, Alban Godwin ..	..	..	1911
Greaves, Harry ..	..	..	1914
Gregory, Bernard Charles ..	..	..	1910
Groom, Percy ..	..	..	1902
Groves, Ruby Caroline ..	..	..	1914
Gunns, Hubert Frank ..	..	..	1908
Haines, Harry ..	..	..	1906
Hague, Gladys Dorothy ..	..	..	1912
*Hale, Harry William ..	..	..	1907
*Hall, Eric Morgan ..	..	..	1913
Harding, Frederick Albert ..	..	..	1911
Harby, Wilfred Harry ..	..	..	1908
Heath, Joseph ..	..	..	1908
Henry, Albert Ernest ..	..	..	1906
Higley, Harold Reynolds ..	..	..	1911
Hilbourne, George Mathias ..	..	..	1908
Hole, Ernest George ..	..	..	1910
Hood, Lilian ..	..	..	1912
Hopkins, Reginald Haydn ..	..	..	1910
Hornby, Arthur John Ward ..	..	..	1914
<i>Housman, Robert Holden (the late)</i> ..	..	..	1901
Hulse, Richard Percival ..	..	..	1903
*Humphreys, Percy James ..	..	..	1907
Ibbs, Thomas Leonard ..	..	..	1910

B.Sc.				Date of Degree.
Iles, Percy Henry	..	..	..	1910
*Jenkins, Frederick Reynolds	..	..	..	1907
Jennens, Arthur Ernest	..	..	..	1914
Jesse, Richard Henry Bishop	..	..	..	1908
*Jeyes, Dorothy	..	..	..	1914
Jones, Herbert Arthur	..	..	..	1913
Jones, Leslie Amiel	..	..	..	1914
Jones, Wilfred	..	..	..	1906
Kaye, William Cyril	..	..	..	1908
*Knapp, Arthur William	..	..	..	1901
*Knight, Frederick William	..	..	..	1914
*Landon, Hilda Mary	..	..	..	1905
*Lapworth, Arthur	..	..	..	1902
Lawton, Hubert Ralph	..	..	..	1906
Lee, Irene Olive	..	..	..	1908
Leese, Cyril Ewart	..	..	..	1912
Leng, Herbert William	..	..	..	1909
Linnitt, Charles Frederick	..	..	..	1909
Lissimore, Ernest	..	..	..	1911
*Lister, George Anslow	..	..	..	1906
*Lloyd, Harold Charles	..	..	..	1910
Lock, Stanley Eli John	..	..	..	1912
*Lovatt, Arthur	..	..	..	1906
Lowe, Charles William	..	..	..	1914
*Maddock, Arthur Percy	..	..	..	1903
Magson, Egbert Hockey	..	..	..	1901
Mannall, Rose Esther	..	..	..	1911
Manton, Arthur Woodroffe	..	..	..	1901
*Mason, Edward Daniel ( <i>ad eundem</i> )	..	..	..	1911
Mason, Evelyn Arthur	..	..	..	1913
Mattocks, John Joseph	..	..	..	1911
Mills, Lawrence Harry	..	..	..	1914
Milward, Ethel Mary	..	..	..	1910
Minshall, Letitia Elizabeth	..	..	..	1913
Moreton, Alfred William Rayns	..	..	..	1911
Morris, George Harris	..	..	..	1901
Morris, Leslie	..	..	..	1908
*Mowinckel, Conrad Helge	..	..	..	1914
Newnham, Eric Victor	..	..	..	1914

<i>B.Sc.</i>				Date of Degree.
Newton, Ethel	..	..	..	1907
Newton, Herbert George	..	..	..	1906
*Nicholls, Edgar Allen	..	..	..	1906
Onions, Laura	..	..	..	1912
*Owen, Gertrude Emily	..	..	..	1906
*Page, Arthur Arnold	..	..	..	1909
Partridge, George Frederick	..	..	..	1911
*Partridge, Gertrude Mary	..	..	..	1906
*Pendlebury, Ivy Louise	..	..	..	1910
Perry, Thomas Leslie	..	..	..	1910
Phillips, Alfred Henry	..	..	..	1912
*Phillips, Walter Charles Stanley	..	..	..	1902
*Pickard, Robert Howson	..	..	..	1901
Pitt, Francis Samuel	..	..	..	1909
Pooler, Frederick John	..	..	..	1902
*Pope, Thomas Henry	..	..	..	1904
Potts, Edith Potter	..	..	..	1911
Price, William John	..	..	..	1911
Priest, Samuel Benjamin	..	..	..	1902
Pritchard, William George	..	..	..	1909
Pritchett, Kathleen Muriel	..	..	..	1912
Purves, Alice Alison	..	..	..	1910
Quinney, Horace	..	..	..	1908
Ray, James Ernest	..	..	..	1914
Robinson, Arthur Gordon	..	..	..	1908
*Roberts, William Frederick	..	..	..	1911
Robson, Vivian Erwood	..	..	..	1913
Rock, George Edwin	..	..	..	1913
Rogers, Sidney	..	..	..	1912
Rowley, Percy	..	..	..	1912
Ryley, Charles Field	..	..	..	1911
*Sanders, Henry Launcelot George	..	..	..	1910
Shercliff, William	..	..	..	1912
Shufflebotham, Hilda Nora	..	..	..	1914
*Silverster, Harry	..	..	..	1902
Slim, George Edmundson	..	..	..	1910
Smith, William Arthur	..	..	..	1911
Somerfield, Edward	..	..	..	1913
Stacey, William Henry	..	..	..	1904

<i>B.Sc.</i>				Date of Degree.
Starkey, Raymond Tildesley	..	..	..	1911
Swinglehurst, Richard Henry	..	..	..	1910
Taylor, Hubert	..	..	..	1914
*Thompson, Charles Joseph	..	..	..	1904
Thompson, Herbert John	..	..	..	1913
*Thorneycroft, Frederick James	..	..	..	1903
Tongue, John William Collis	..	..	..	1914
Troughton, Beatrice Ellen	..	..	..	1908
*Tsao, Hui Chun	..	..	..	1911
*Turner, Bertrand	..	..	..	1913
*Turner, Christian Mary (Mrs. G. Shaw Scott)	..	..	..	1910
Tunstall, Arthur Cuthbert	..	..	..	1912
*Udal, John Pountney	..	..	..	1904
Underwood, Elsie Amy	..	..	..	1914
Vallance, Reece Henry	..	..	..	1910
Walford, Ernest	..	..	..	1912
Walker, Arthur Oldfield	..	..	..	1906
*Walker, Cranston	..	..	..	1908
*Walsh, Nora	..	..	..	1913
*Wearing, Cyril Murray	..	..	..	1914
Weaving, Archibald Arthur	..	..	..	1913
Webb, Henry	..	..	..	1909
*Whittingham, Frederick	..	..	..	1908
White, Edmund John	..	..	..	1913
*Wilding, Jane Ellis	..	..	..	1902
Wood, Charles Edmund	..	..	..	1914
Wood, Florence Mary	..	..	..	1912
Woolf, Montague Sydney	..	..	..	1913
Wragg, Eveline	..	..	..	1912
Wright, Eva (Mrs. F. H. Stephens)	..	..	..	1906
*Wright, Harry	..	..	..	1906
Wright, Robert	..	..	..	1906
*Wynn, William Benjamin	..	..	..	1913
*Yeh, Tsin Hsin	..	..	..	1911

## B.Sc. IN ENGINEERING.

*Abbott, William Scott (Civil)	..	..	..	1911
*Agbebi, George Debayo (Civil)	..	..	..	1911
Ashwell, Ernest (Civil)	..	..	..	1909

*B.Sc.*

		Date of Degree.
*Barwell, Hugh William Eames (Civil)	..	1914
Bates, Harold Christopher (Civil)	..	1912
Bayliss, Arthur Noel (Mechanical)	..	1914
*Bishop, Douglas Howard	..	1906
Bladwell, Leonard Joseph (Civil)	..	1914
Bolton, Charles John Howard (Mechanical)	..	1910
Bowater, Norman James (Mechanical)	..	1910
Brown, Eric Gordon (Civil)	..	1911
Brown, Frederick John (Mechanical)	..	1914
Bunting, Harry Lawrence (Mechanical)	..	1909
*Cave-Brown-Cave, Nigel Frederick (Mechanical)		1909
*Chun, James Wing Cham (Civil)	..	1911
Chinn, Frank Morton (Civil)	..	1912
Clay, Arthur Frederick (Electrical)	..	1914
*Clifford, George Herbert Workman (Mechanical)		1914
Cross, Edgar Algernon (Civil)	..	1909
*Crowther, Frederick Kenneth (Mechanical)	..	1913
Elkington, Arthur Edward Hardwick (Civil)	..	1914
Erfan, Mohammed (Civil)	..	1914
Eyles, Edward Godfrey (Mechanical)	..	1910
Floyd, Alfred Frederick (Mechanical)	..	1913
Frugoni, Emilio Lopez (Civil)	..	1913
*Gibson, Charles Prosser (Civil)	..	1913
*Gough, Arthur Trevor (Civil)	..	1909
*Green, George Wilfred Acland (Mechanical)	..	1907
Greenway, Noel Wilson (Mechanical)	..	1907
*Gumersall, Gerald Joseph (Mechanical)	..	1912
Hall, Horace Frank (Mechanical)	..	1913
*Hanford, Sydney (Mechanical)	..	1911
Harris, Arnold William Elsmere (Electrical)	..	1905
Hildick, Allan (Mechanical)	..	1913
*Hillman, Eric Chester	..	1914
Hipkins, Edward Cecil Daniel (Mechanical)	..	1914
Hunter, Kenneth Henry Windle (Mechanical)	..	1913
Hutton, John Barnabas (Mechanical)	..	1912
<i>Heathcote, Ernest William (the late) (Electrical)</i>		1905
*Hough, Sidney John (Mechanical)	..	1909
Isherwood, Norman George (Civil)	..	1912
Jamie, Robert Cuthbert (Electrical)	..	1913

<i>B.Sc.</i>		Date of Degree.
* Jones, Charles Henry (Mechanical)	..	1912
Jones Oscar Trevor (Mechanical)	..	1913
Kapp, Reginald Otto (Electrical)	..	1909
*Kershaw, Lawrence William (Civil)	..	1907
Kidd, Cecil Christian (Civil)	..	1912
Kinder, Frederick Thomas	..	1906
Knight, Arthur Noel Stanley (Mechanical)	..	1907
Lea, Norman (Mechanical)	..	1913
*Ledbrook, Sydney William (Electrical)	..	1908
*Luker, Sydney Land (Civil)	..	1911
Lyth, Cyril John (Civil)	..	1914
Magrath, William Thomas (Electrical)	..	1908
Marris, George Christopher (Electrical)	..	1910
Middleton, John Grove (Civil)	..	1912
Mitra, Himansumohan (Electrical)	..	1909
Moharram, Mohammed (Electrical)	..	1912
Moir, Leonard Rae (Civil)	..	1910
Moncur, James (Civil)	..	1905
Morse, Thomas Ridding (Mechanical)	..	1910
Mustard, Frederick Claud (Mechanical)	..	1910
*Nevett, William Percy (Civil)	..	1909
Patterson, George (Mechanical)	..	1912
Pearce, James George (Mechanical)	..	1914
Pettipher, Frank (Mechanical)	..	1913
*Pilson, Charles Alexander (Electrical)	..	1908
*Pipe, Thomas Sylvanus (Electrical)	..	1905
Pool, William John (Electrical)	..	1914
Powell, Clarence Henry (Mechanical)	..	1912
Rawlins, George Bromley (Civil)	..	1912
Ritchie, George Thwaits (Civil)	..	1907
Ritchie, William Bruce Almon (Civil)	..	1909
Roberts, Samuel Arthur (Mechanical)	..	1904
Robinson, Arthur Gordon (Civil)	..	1909
Romero-Day, Hector (Civil)	..	1911
Roonchit, Nai Chun (Civil)	..	1913
*Rope, Frederic Michael (Mechanical)	..	1910
Simms, Harold Marston (Mechanical)	..	1912
Smart, John Deiro (Mechanical)	..	1907
Smith, Leonard Warren (Electrical)	..	1912

*B.Sc.*

				Date of Degree.
Smith, Louis Victor (Mechanical)	..	..	..	1910
Smith, Richard Hugh (Civil)	..	..	..	1908
*Smith, Sidney (Mechanical)	..	..	..	1907
*Sonnenschein, Christopher Edward ( <i>deceased</i> )				
( <i>Electrical</i> )	..	..	..	1909
Stern, Theodore Henry (Civil)	..	..	..	1911
*Stubbs, Albert (Mechanical)	..	..	..	1914
*Tart, Cyril James (Civil)	..	..	..	1910
Taylor, Charles Henry (Mechanical)	..	..	..	1908
*Taylor, Fred (Electrical)	..	..	..	1910
*Taylor, Harry (Civil)	..	..	..	1908
Thorne, Charles Everard (Mechanical)			..	1912
*Thompson, Alwyne Geoffrey (Civil)	..	..	..	1911
Tregea, William Herbert (Civil)	..	..	..	1914
*Tsien, Pao Tsung (Civil)	..	..	..	1911
*Tunbridge, Edward William (Mechanical)			..	1905
Tung, Pau Cheng (Civil)	..	..	..	1913
Turner, Leslie (Civil)	..	..	..	1912
*Underwood, Francis (Civil)	..	..	..	1913
*Vaudrey, Randle Henry Neville (Mechanical)	..			1911
Walter, Cecil Montague (Mechanical)	..	..	..	1911
Wardle, Alfred George (Mechanical)	..	..	..	1913
*Warth, Edwin Frederick (Civil)	..	..	..	1910
Watkins, William Lewis (Electrical)	..	..	..	1914
*Watson, David Mowat (Civil)	..	..	..	1913
Westcott, Victor Reginald (Mechanical)			..	1908
*Whiting, William James (Mechanical)			..	1909
*Wilkes, Samuel John Herbert (Mechanical)			..	1906
Wilmot, Stanley Birley (Civil)	..	..	..	1909
*Wynn, Albert Edward (Civil)	..	..	..	1909
*Young, Sydney John (Mechanical)	..	..	..	1909

## B.Sc. IN METALLURGY.

Adams, Frederick William	..	..	..	1914
*Earle, Harold Thomas	..	..	..	1910
Ellis, Owen William	..	..	..	1914
Field, Arthur John	..	..	..	1914
*Findon, Geoffrey Bernard	..	..	..	1913

*B.Sc.*

					Date of Degree.
Gross, Leonard Ansell .. .. .. ..	..	..	..	..	1911
Groves, Clarence Richard .. .. .. ..	..	..	..	..	1911
*Gibson, Heseltine .. .. .. ..	..	..	..	..	1913
Hafiz, Abdul .. .. .. ..	..	..	..	..	1909
Hsu, Sing Loh .. .. .. ..	..	..	..	..	1911
Ingall, Douglas Heber .. .. .. ..	..	..	..	..	1913
Keep, Arthur Stuart .. .. .. ..	..	..	..	..	1912
Nair, Thekath Kumaran .. .. .. ..	..	..	..	..	1914
Nevill, Richard Walter Douglas .. .. .. ..	..	..	..	..	1911
Thorneycroft, William Ernest .. .. .. ..	..	..	..	..	1914
Turner, Bernard .. .. .. ..	..	..	..	..	1911

*B.Sc. IN MINING.*

*Bailey, Cecil Henry .. .. .. ..	..	..	..	..	1909
Barclay, Allen .. .. .. ..	..	..	..	..	1908
Bardaloye, Girish Chandra .. .. .. ..	..	..	..	..	1913
*Barrett, Victor Holmes McNaghten .. .. .. ..	..	..	..	..	1908
<i>Bose, Asok (the late)</i> .. .. .. ..	..	..	..	..	1908
Bruce, Christopher Yule .. .. .. ..	..	..	..	..	1909
Catherall, Arthur Philip .. .. .. ..	..	..	..	..	1910
Clark, Frederick Bernard .. .. .. ..	..	..	..	..	1910
*De, Satis Chandra .. .. .. ..	..	..	..	..	1907
Drake, Wilfrid, .. .. .. ..	..	..	..	..	1913
Ford, Gabriel Robert Harvey .. .. .. ..	..	..	..	..	1914
*Fox, Cyril Sankey .. .. .. ..	..	..	..	..	1908
Franks, Philip Hamilton .. .. .. ..	..	..	..	..	1910
Gray, William .. .. .. ..	..	..	..	..	1913
Hulse, William .. .. .. ..	..	..	..	..	1914
Lloyd-Jones, Ieuan .. .. .. ..	..	..	..	..	1912
McQueen, William Andrew .. .. .. ..	..	..	..	..	1908
Moss, Kenneth Neville .. .. .. ..	..	..	..	..	1914
Nag, Dwyendra Chandra .. .. .. ..	..	..	..	..	1911
*Newey, Dudley Shaw .. .. .. ..	..	..	..	..	1914
Obaidullah, Mohammad .. .. .. ..	..	..	..	..	1912
Pitt, Charles Harry .. .. .. ..	..	..	..	..	1913
*Poole, Granville .. .. .. ..	..	..	..	..	1908
Ray, Manmatha Kumar .. .. .. ..	..	..	..	..	1910
Read, Harry Crible .. .. .. ..	..	..	..	..	1907

*B.Sc.*

				Date of Degree.
Ropp, Stephen Godfrey Joseph	..	..	..	1914
*Scott, George Norman	..	..	..	1913
Sen-Gupta, Monmatha Nath	..	..	..	1913
Seyfried, John Thaddeus de	..	..	..	1907
*Smith, Gavin Hildick	..	..	..	1907
Smith, Reginald Huntley	..	..	..	1914
Stephen, George Duncan	..	..	..	1908
*Whitehouse, James	..	..	..	1906

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## FACULTY OF ARTS.

## D. LITT.

*Fiedler, Elise Minna (Mrs. Karl Wichmann)	..	..	..	1903
*Macmillan, Michael	..	..	..	1908
*Thomas, Henry	..	..	..	1909

## D. PHIL.

*Wodehouse, Helen Marion	..	..	..	1907
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## M.A.

Allen, Frederick	..	..	..	..	1914
Alsop, Horace	..	..	..	..	1914
Arteaga, Fernando de	..	..	..	..	1907
Ashley, Annie	..	..	..	..	1912
*Baggs, Thomas Alexander	..	..	..	..	1912
Bainton, Estelle	..	..	..	..	1911
Banks, Reginald	..	..	..	..	1913
Bantock, Granville	..	..	..	..	1909
Barnett, Arthur James	..	..	..	..	1901
*Barnes, Eliza Mary Ann	..	..	..	..	1913
Barnes, May	..	..	..	..	1914
Beazley, Charles Raymond	..	..	..	..	1910
*Bevenot, Clovis	..	..	..	..	1901
Bleby, Mary Louise	..	..	..	..	1906
Brown, Percy Charles	..	..	..	..	1912
*Bryce, Jeanie	..	..	..	..	1911
*Burrows, Mabel May	..	..	..	..	1912

## M.A.

			Date of Degree.
Butler, Arthur Wellesley	..	..	1907
*Carpenter, Thomas Lionel	..	..	1906
*Chatelain, Henri	..	..	1910
<i>Collins, Churton John (the late)</i>	..	..	1905
*Cooke, Stella Edith (Mrs. Bert Starten)	..	..	1909
Cottrell, Thomas Ernest	..	..	1914
*Cox, Marguerite Anna	..	..	1911
*Craig, Agnes Isabel	..	..	1909
Crutchley, Adeline	..	..	1912
Day, Marjorie Elizabeth	..	..	1911
*Dixon, William Macneile	..	..	1901
Douglas, Malcolm Bryce	..	..	1913
*Elgar, Edward	..	..	1907
*Etheridge, Gladys	..	..	1911
Faulkner, William	..	..	1905
*Fielder, Hermann Georg	..	..	1901
Fisher, Edmund	..	..	1914
*Fitter, Lilian Emily	..	..	1908
Fretter, Arthur	..	..	1911
*Fry, Sara Margery	..	..	1911
*Gibson, Frances Millicent	..	..	1912
*Gough, Minnie Margaret	..	..	1908
Hale, Ethel Minnie	..	..	1913
Hampton, Harold Watchorn	..	..	1910
Handley, Marion	..	..	1906
Harris, Mary Lorna	..	..	1914
Hartland, Reginald William	..	..	1913
Hatfield, Henry Arnold	..	..	1913
*Hawkes, Margaret Mellard	..	..	1902
*Hedgcock, Frank Arthur	..	..	1913
Hill, Arthur Harry	..	..	1910
*Hipkins, John Charlton	..	..	1910
*Hirst, Margaret Esther	..	..	1911
*Honniball, Victor Fred	..	..	1911
*Hughes, Alfred	..	..	1904
Hughes, Edith Grace	..	..	1908
*Hunt, Elsie Maud Caruthers	..	..	1913
Intze, Ottakar	..	..	1914
Ivens, John Philips	..	..	1913

*M.A.*

				Date of Degree.
*Jennings, Editha Helena	..	..	..	1909
Jewsbury, William	..	..	..	1908
Johnson, William Harold	..	..	..	1913
*Jope, Francis Edward	..	..	..	1910
Joyce, Anne Hollingworth	..	..	..	1910
*Lee, Winifred	..	..	..	1903
*Lineham, Andrew Wood	..	..	..	1905
*Loveridge, Percy Norman	..	..	..	1907
*Madan, Annie Harriet	..	..	..	1909
Masterman, John Howard Bertram	..	..	..	1902
May, Elsie Gertrude	..	..	..	1901
*Muirhead, John Henry	..	..	..	1901
Robbins, William Alwyn	..	..	..	1911
*Roscoe, Frank	..	..	..	1910
Rose, Arthur Norman	..	..	..	1912
*Ross, Lizzie Louise	..	..	..	1912
*Salt, Lizzie Goodwin	..	..	..	1908
*Selincourt, Ernest de	..	..	..	1909
*Sidgwick, Rose	..	..	..	1908
*Smith, Elizabeth Emma	..	..	..	1908
Smith, William Edward	..	..	..	1914
*Sonnenschein, Edward Adolf	..	..	..	1901
Stevenson, John Charles	..	..	..	1914
Taylor, Herbert William	..	..	..	1914
*Taylor, Venetta Lilian	..	..	..	1911
*Thomason, May Beatrice	..	..	..	1913
Toy, Kathleen Norah	..	..	..	1911
*Turner, Edith	..	..	..	1908
*Walker, Amy Jane	..	..	..	1906
Watson, Lily	..	..	..	1910
*Wichmann, Karl	..	..	..	1908
Wilson, Arthur Ernest	..	..	..	1914
Wilson, Frank Percy	..	..	..	1912
<i>Wordsworth, Emily Constance (the late)</i>		..	..	1912

*M.A. (SCHOOL OF CLASSICS.)*

Dunsby, Charles	..	..	..	1912
Hingley, George Clement	..	..	..	1912
Marshall, Dorothy	..	..	..	1913

## M.A. (SCHOOL OF MODERN LANGUAGES.)

				Date of Degree.
Adams, Thomas Henry ..	..	..	..	1908
Airston, Wilhelmina ..	..	..	..	1914
Cash, Edith Fanny ..	..	..	..	1914
Finney, Kathleen Elizabeth ..	..	..	..	1913
*Freeman, Amy Helen ..	..	..	..	1906
*Green, Margaret Minna ..	..	..	..	1909
Kay, Laurence Herbert ..	..	..	..	1912
Maddison, Mary Gildon ..	..	..	..	1910
Marshall, Wallace Henry ..	..	..	..	1911
Niblett, Alfred Edgar ..	..	..	..	1911
Parker, Edward Arthur ..	..	..	..	1911
Rose, William ..	..	..	..	1914
*Smallwood, Frank Theodore ..	..	..	..	1910
Southall, Ida Margaret ..	..	..	..	1914
*Titterton, May (Mrs. N. F. Cave-Brown-Cave) ..	..	..	..	1908
Woolf, Montague Sydney ..	..	..	..	1907

## M.A. (SCHOOL OF ENGLISH).

*Ashley, Wilfred Severne ..	..	..	..	1908
Bailey, Mabel Nellie ..	..	..	..	1913
Colgrave, Bertram ..	..	..	..	1910
Goodman, Gilbert Neville ..	..	..	..	1914
McIntosh, Nora Russell ..	..	..	..	1914
Peaty, Mary Josephine ..	..	..	..	1914

## B.A.

Adams, May Dorothy ..	..	..	..	1914
Adcock, Bert ..	..	..	..	1911
Alcock, William Desmond Evelyn ..	..	..	..	1913
*Allen, Annie ..	..	..	..	1910
Amiss, Winifred Helen ..	..	..	..	1914
Armitage, Dora Kathleen ..	..	..	..	1907
Ashby, Mabel Kathleen ..	..	..	..	1914
Ashton, Alexander ..	..	..	..	1911
*Atkinson, Elizabeth Maud ..	..	..	..	1913
*Ayrton, Agnes Clarissa ..	..	..	..	1913
Babb, Winifred Emma ..	..	..	..	1910

## B.A.

					Date of Degree.
Ball, Arthur	..	..	..	..	1912
*Ball, Susan	..	..	..	..	1905
*Barker, John William	..	..	..	..	1913
*Barker, Mary Ethel	..	..	..	..	1907
Barrett, Frances May	..	..	..	..	1912
Bartindale, Edith Dora	..	..	..	..	1908
*Bassett, Mary	..	..	..	..	1909
Bates, John Leslie	..	..	..	..	1907
Bayliss, William Thomas	..	..	..	..	1909
*Beck, Beatrice	..	..	..	..	1909
Beckett, Lydia Agnes	..	..	..	..	1910
Beddows, Edith	..	..	..	..	1908
*Beebee, Ethel May	..	..	..	..	1913
Bellison, Mark	..	..	..	..	1914
*Belton, Frances Nora	..	..	..	..	1907
*Belton, Nelly Gwendolyn (Mrs. E. L. Eastgate)					1907
*Bevenot, Gaston	..	..	..	..	1910
Bickmore, Annie	..	..	..	..	1909
Birch, Bernard John Mellor	..	..	..	..	1909
Bishop, George Geoffrey Alexander	..	..	..	..	1909
Britton, Frances Mabel	..	..	..	..	1910
*Brockington, William Allport	..	..	..	..	1902
*Brown, Lilian Eva	..	..	..	..	1907
*Buchanan, Mary McFarlane	..	..	..	..	1906
Burchell, Lilian Anne (Mrs. A. J. Ensor)					1906
*Burgess, Louisa Victoria	..	..	..	..	1913
Burton, Sydney	..	..	..	..	1911
Butler, Percival Williamson	..	..	..	..	1910
Cade, Frank	..	..	..	..	1914
*Campion, Ethel Elizabeth	..	..	..	..	1907
Campion, Grace Mary	..	..	..	..	1912
Carson, Jessie Gertrude	..	..	..	..	1911
*Cautherley, Mildred Ruth	..	..	..	..	1913
Chitty, Florence	..	..	..	..	1913
Clarke, Albert Edward	..	..	..	..	1912
Clews, Hollis Hudson	..	..	..	..	1914
Coates, Dorothy	..	..	..	..	1910
Coates, John Bourne	..	..	..	..	1912
*Cook, Dorothy Mabel	..	..	..	..	1913

B.A.				Date of Degree.
Cooke, Alfred Roland ..	..	..	..	1912
Cope, Dora Gwendoline ..	..	..	..	1913
*Copson, Edith Emma ..	..	..	..	1907
Couch, Herbert William ..	..	..	..	1912
*Cox, Dorothy Cecile ..	..	..	..	1911
Crew, Dorothy ..	..	..	..	1909
Critchley, Godfrey Percival ..	..	..	..	1912
Cullis, Eleanor ..	..	..	..	1913
Cumming, Gertrude ..	..	..	..	1914
Curtin, Annie ..	..	..	..	1914
Cutting, Ethel Sophia ..	..	..	..	1906
Davies, Ellen Elizabeth ..	..	..	..	1906
*Davies, Annie Mary ..	..	..	..	1910
*Davis, Amy ..	..	..	..	1903
*Davis, Esther ..	..	..	..	1909
Day, Christina Collin ..	..	..	..	1909
*Dearnley, Edith ..	..	..	..	1907
*Dedicoat, Dorothy Alice ..	..	..	..	1913
Doughty, Ethel May ..	..	..	..	1907
Doughty, Mabel Annie ..	..	..	..	1912
*Douglas, Ella Winifred (Mrs. H. Phibbs) ..	..	..	..	1902
Drew, Lillie Elizabeth ..	..	..	..	1912
Druller, Vivian Vaughan ..	..	..	..	1914
Duncan, Emily Grace ..	..	..	..	1908
*Ekins, Martha Emma ..	..	..	..	1911
Evans, Clementina Elizabeth ..	..	..	..	1912
Evans, Gwen ..	..	..	..	1914
*Fleming, Margaret Rosalind ..	..	..	..	1910
Flower, Marie ..	..	..	..	1911
Floyd, George ..	..	..	..	1909
*Ford, Robert Edgar ..	..	..	..	1911
*Forbes, Melanie Sophie ..	..	..	..	1907
*Foster, Evelyn Mary ..	..	..	..	1909
Freeling, Dorothy ..	..	..	..	1912
Frew, Margaret Annie ..	..	..	..	1914
*Frizell, Edith Annie ..	..	..	..	1905
Fullwood, Florence Kathleen ..	..	..	..	1914
Galloway, Catherine Agnes ..	..	..	..	1913
Garbutt, Helen ..	..	..	..	1912

**B.A.**

			Date of Degree.
Gibson, Elizabeth Beatrice	..	..	1907
Gibson, Mary Tregellas ( <i>School of Modern Languages</i> )	..	..	1914
*Gill, Annie Eleanor (Mrs. J. J. Barton)	..	..	1909
Ginn, Ethel Mary	..	..	1914
Glassey, Carlotta Primrose	..	..	1908
Glassey, Stanley Churchill	..	..	1909
Glendon, Edgar Tom	..	..	1912
Goodwin, Evelyn Fanny	..	..	1910
Goodwin, Muriel Annie	..	..	1914
Green, Florence	..	..	1908
Griffin, John Ridgeway	..	..	1914
Grindlay, Agnes Scales	..	..	1912
Guise, Ewart Stanley ( <i>School of English</i> )	..	..	1914
Hale, Ethel Minnie	..	..	1913
*Hannah, Emily Clair	..	..	1906
Harris, Frances Emily	..	..	1912
Harriss, Irene Vernon	..	..	1914
Harrison, Arthur Cyril	..	..	1914
*Harrison, Gladys	..	..	1911
Hart, Grace Mary	..	..	1914
Hartley, Mary Forrest	..	..	1906
Haselden, Annie	..	..	1914
Haselden, Robert	..	..	1914
Hatton, Primrose..	..	..	1913
Hayes, Gertrude Eliza	..	..	1913
Haylett, Charles Henry	..	..	1908
Hibburd, Else May	..	..	1912
Hibburd, Marguerite Frances	..	..	1912
*Hill, Edith Millicent	..	..	1906
Hill, Esther Mary	..	..	1910
Hinchley, Jessie Emily	..	..	1914
Hindsley, Madeline	..	..	1911
Hipkins, Charles Hammond	..	..	1914
Holliday, Catherine Elizabeth	..	..	1914
*Holloway, Ettie Gertrude	..	..	1906
Holloway, Dorothy	..	..	1914
Holloway, Jessie Elizabeth	..	..	1914
Hoult, Marion Prince	..	..	1912

B.A.				Date of Degree.
Hughes, Violet Harriet .. .. .. ..	..	..	..	1908
Humpherson, Winifred Jane .. .. .. ..	..	..	..	1910
Humphreys, Christabel Tryphena Mary (Mrs. G. P. Mills) .. .. .. ..	..	..	..	1912
*Irvine, Louise Jane .. .. .. ..	..	..	..	1905
*Jackson, Francis Edgar .. .. .. ..	..	..	..	1902
*Jacombs, Mary Elaine .. .. .. ..	..	..	..	1910
Jenkins, Thomas Henry .. .. .. ..	..	..	..	1911
Johnson, Horace .. .. .. ..	..	..	..	1913
Jones, Elsie Maude .. .. .. ..	..	..	..	1909
Jones, Gertrude Sarah Ann .. .. .. ..	..	..	..	1914
Jones, William Herbert .. .. .. ..	..	..	..	1908
Jones, Winifred Marguerite .. .. .. ..	..	..	..	1907
Katz, Jacques .. .. .. ..	..	..	..	1905
Kay, Florence Emilie .. .. .. ..	..	..	..	1914
Keeling, John .. .. .. ..	..	..	..	1910
Knowles, Frederick .. .. .. ..	..	..	..	1913
Kirk, Richard Thomas Francis .. .. .. ..	..	..	..	1901
Lardge, Florence Mabel .. .. .. ..	..	..	..	1914
Leach, Mary Sumner .. .. .. ..	..	..	..	1910
Leonard, George Samuel .. .. .. ..	..	..	..	1909
Lewis, Dora Millicent .. .. .. ..	..	..	..	1911
Lightfoot, Mildred .. .. .. ..	..	..	..	1909
Lindon, Albert .. .. .. ..	..	..	..	1913
Linney, Gertrude .. .. .. ..	..	..	..	1907
Lloyd, Jessie Lilian .. .. .. ..	..	..	..	1907
*Lloyd, Walter Harry .. .. .. ..	..	..	..	1911
Loach, Arthur William .. .. .. ..	..	..	..	1906
Luckman, Walter Frank .. .. .. ..	..	..	..	1913
*Mackintosh, Christina Alice .. .. .. ..	..	..	..	1904
McKinnell, Flora Eastaway .. .. .. ..	..	..	..	1906
*Marchant, Anne Jane .. .. .. ..	..	..	..	1901
*Marsh, Alma .. .. .. ..	..	..	..	1912
Marsh, Nora Alice .. .. .. ..	..	..	..	1914
Marshall, Hazel .. .. .. ..	..	..	..	1914
Mason, Edward .. .. .. ..	..	..	..	1914
Mason, Lottie Beatrice (Mrs. A. W. Mason) .. .. .. ..	..	..	..	1904
*Mills, Francis Lonsdale .. .. .. ..	..	..	..	1913
Mills, Mary Grace .. .. .. ..	..	..	..	1908

*B.A.*

				Date of Degree.
*Milward, Katie Millicent	..	..	..	1908
*Minahan, Rose	..	..	..	1905
*Moon, Melita, Mary Annie	..	..	..	1904
*Morley, Edith Mary	..	..	..	1909
Morris, Ernest Frederick	..	..	..	1908
Murphy, Lawrence Saunders	..	..	..	1909
Murphy, Mildred	..	..	..	1913
*Murray, John Claude	..	..	..	1905
Oulsnam, Christabel Mary	..	..	..	1911
Overton, Elsie Mai (Mrs. J. M. Ure)	..	..	..	1905
Parker, Mary Olive	..	..	..	1912
Parry, Kathleen	..	..	..	1908
Partridge, Dinah	..	..	..	1912
*Partridge, Dora Lilian	..	..	..	1911
Payton, Margaret Evelyn	..	..	..	1904
Pearsall, Lucy Ellen	..	..	..	1914
Pearson, Doris Ivy	..	..	..	1912
Pearson, Edgar McCully	..	..	..	1914
Pearson, Frank Harry	..	..	..	1909
Peart, Emilie	..	..	..	1913
*Phillips, Amy Lilian	..	..	..	1906
Phillips, Bernard William ( <i>School of Modern Languages</i> )	..	..	..	1910
Piercy, Edgar Ernest ( <i>School of Classics</i> )	..	..	..	1912
Pither, Florence Mary	..	..	..	1914
*Pitman, Ruth	..	..	..	1909
Pitt, William Lawrence	..	..	..	1912
*Plant, David Wallace	..	..	..	1903
Preece, Muriel Jessie	..	..	..	1913
*Priest, Beatrice Adeline	..	..	..	1908
*Priestman, Lilian Ada	..	..	..	1907
Prosser, Catherine Lavinia	..	..	..	1914
Pryor, Elsie Marguerite	..	..	..	1909
Rackstraw, Marjorie	..	..	..	1912
*Rainsford, Raymond Gibbs	..	..	..	1911
Read, Marion Althea	..	..	..	1914
Reyes, Consuelo Mary de	..	..	..	1912
Robinson, Harriet May	..	..	..	1914
*Roe, William Carey	..	..	..	1911

B.A.				Date of Degree.
Rosborough, Stanley Melville ..	..	..	..	1914
Round, Bernard ..	..	..	..	1911
Round, Horace ..	..	..	..	1913
*Round, Margaret Helen ..	..	..	..	1910
Rowlands, Edith Alice ..	..	..	..	1913
*Sabell, Lilian Gertrude ..	..	..	..	1908
Sadler, Dorothy ..	..	..	..	1914
Schofield, Gladys Jessie ..	..	..	..	1911
*Scott, Agatha Mary ..	..	..	..	1910
Sewell, Dorothy Ella ..	..	..	..	1912
Shaw, Thomas Vincent ..	..	..	..	1910
*Sheasby, Hilda Mabel ..	..	..	..	1908
Sherratt, Ellen ..	..	..	..	1908
Shutt, Lillie ..	..	..	..	1913
Simpson, Winifred Jane ..	..	..	..	1912
Smith, Augusta Mary ..	..	..	..	1914
Smith, Arthur ..	..	..	..	1912
*Smith, Jane Ingham ..	..	..	..	1903
*Smith, Mary Eliza Beatrice (Mrs. Willetts) ..	..	..	..	1905
Southerton, Laurence Cyril ..	..	..	..	1914
<i>Stanger, Annie Louisa (the late)</i> ..	..	..	..	1910
Stone, Hubert Charles ..	..	..	..	1913
*Storer, Eleanor Louisa ..	..	..	..	1907
Sutherns, Harry Davis ..	..	..	..	1908
Swann, Ann Mary Goodrick (Mrs. M. O. B. Caspari) ..	..	..	..	1908
Taylor, Gladys Maud ..	..	..	..	1914
*Taylor, Constance Reed (Mrs. Ernest Guy) ..	..	..	..	1910
*Taylor, Herbert William ..	..	..	..	1913
<i>Taylor, Matilda (the late)</i> ..	..	..	..	1905
*Thomas, Elsie Lilian Poyser ..	..	..	..	1906
Thompson, Harold Norman ..	..	..	..	1913
Thompson, Lucy Ann ..	..	..	..	1912
Thorncroft, Gertrude Elsie ..	..	..	..	1913
Thornton, Hilda Madeline ..	..	..	..	1912
*Tidmarsh, Elsie Isabel ..	..	..	..	1906
Tosh, Fannie Helen ..	..	..	..	1914
Turner, John Ewart Shipley ..	..	..	..	1914
Vernon, Evelyn Lorna ..	..	..	..	1907

## B.A.

				Date of Degree.
Vernon, Muriel Iris Marjorie	..	..	..	1913
Vokes, Kathleen Hilda	..	..	..	1910
Wain, William Alec	..	..	..	1911
*Waite, Gertrude	..	..	..	1911
*Walkerdine, Adelaide Amy	..	..	..	1911
Walker, Agnes Nea ( <i>School of Modern Languages</i> )	..	..	..	1910
Walker, Evelyn Agar	..	..	..	1914
Waller, Grace Hutchinson	..	..	..	1914
Watson, Inez	..	..	..	1909
*Weavers, Elsie Matilda	..	..	..	1909
Westwood, Elsie	..	..	..	1913
White, Eric Arthur	..	..	..	1906
*White, Jessie	..	..	..	1905
*Whitehead, Annie Marguerite	..	..	..	1914
Wilkes, Addie	..	..	..	1911
Wilkinson, Edith Mary	..	..	..	1907
Wilkinson, Miriam	..	..	..	1914
Wilkinson, William Evans	..	..	..	1914
*Wilson, Dora Alice	..	..	..	1909
*Wilson, Frank Percy	..	..	..	1911
*Wilson, Jessie Hannah	..	..	..	1909
Woods, Grace Catlin	..	..	..	1908
Worthington, Frances Ellen	..	..	..	1913
*Wragg, Ethel	..	..	..	1914
*Wragg, Harriet	..	..	..	1904
Wright, Frank William	..	..	..	1909
Wright, Margaret Dorothea	..	..	..	1908
*Wyatt, Alfred John	..	..	..	1903

## B.Mus.

Godfrey, Harold Graham	..	..	..	1914
*Ratchiffe, Christine	..	..	..	1913
*Raybould, Robert Clarence	..	..	..	1912
Roberts, Clifford	..	..	..	1913

## FACULTY OF MEDICINE.

	M.D.	Date of Degree.
Assinder, Eric Walter	.. .. ..	.. 1914
*Browne, Henry William Langley	..	.. 1902
<i>Bywater, Ernest Frederick Wharton (the late)</i>	..	.. 1913
*Crowe, Henry Neville	.. .. ..	.. 1913
Evans, John Jameson	.. .. ..	.. 1903
Fenton, James	.. .. ..	.. 1913
*Fowler, Thomas Webb	.. .. ..	.. 1906
*Hird, Robert Beatson Dennis	.. .. ..	.. 1906
Holden, Oscar Madeley	.. .. ..	.. 1914
* <i>Lloyd, Jordan (the late)</i>	.. .. ..	.. 1904
*Lyster, Robert Arthur	.. .. ..	.. 1908
Mackey, Leonard George Joseph	.. .. ..	.. 1907
*Motteram, Henry Prince	.. .. ..	.. 1902
Orton, John	.. .. ..	.. 1902
*Owen, David Charles Lloyd	.. .. ..	.. 1902
Pickerill, Henry Percy	.. .. ..	.. 1911
*Polson, James Ronald	.. .. ..	.. 1903
*Potts, William Alexander	.. .. ..	.. 1903
Robinson, Arthur	.. .. ..	.. 1905
Rollason, Norman John Lancelot	.. .. ..	.. 1908
Simon, Robert Michael	.. .. ..	.. 1910
Sisam, William	.. .. ..	.. 1903
Stanley, John Douglas	.. .. ..	.. 1904
Stewart, Helen Gertrude (Mrs. A. S. F. Grunbaum)	.. .. ..	.. 1908
Thompson Peter	.. .. ..	.. 1910
*Townsend, Arthur Allen Deykin	.. .. ..	.. 1903
Weaver, Alfred Ernest Remmett	.. .. ..	.. 1906
<i>Webb, Thomas Law (the late)</i>	.. .. ..	.. 1903
*Wilkes, George Arthur	.. .. ..	.. 1902
Wilkinson, Kenneth Douglas	.. .. ..	.. 1913

## CH.M

Hewetson, John Thomas	.. .. ..	.. 1904
*Leedham-Green, Charles Albert	.. .. ..	.. 1904
*Marsh, Frank	.. .. ..	.. 1906
Nuthall, Alexander Wathen	.. .. ..	.. 1906
*Wilson, Thomas	.. .. ..	.. 1904

## M.B. AND CH.B.

			Date of Degree.
*Abrahams, Reginald George	..	..	1914
Adams, John	..	..	1909
Aitken, Robert Wallace	..	..	1906
Alabaster, George Herbert	..	..	1912
Ashby, Elizabeth Labrey	.....	..	1914
*Ashton, William Frederick Ewart	..	..	1908
Astbury, Reginald Hudson	..	..	1906
*Atkins, John Francis	..	..	1902
Austin, John Staines	..	..	1906
*Bailey, Charlotte (Mrs. Charlotte Bacon)	..	..	1908
Bampton, James Henry	..	..	1912
*Barnes, Arthur Stanley	..	..	1903
Baylis, Henry	..	..	1902
Beazeley, Tom William	..	..	1904
Belcher, George Clement	..	..	1901
*Bennett, William Edward	..	..	1902
Blackham, Walter Charles	..	..	1909
Boome, Edward James	..	..	1908
Boswell, Norman Alexander	..	..	1910
Bracey, Herbert Charles Horace	..	..	1907
*Bradford, Cordley	..	..	1903
Broderick, Ralph Alexander	..	..	1913
Brown, Harold Corser	..	..	1903
Browning, Harold Gordon	..	..	1910
Buckler, Eric Francis	..	..	1913
Bunting, Edward Lancelot	..	..	1905
*Burd, Reginald Shirley	..	..	1901
Cant, Arthur	..	..	1901
Cant, William John	..	..	1902
*Carruthers, Walter Donald	..	..	1906
Chapman, Walter	..	..	1902
Charsley, Gilbert William	..	..	1901
*Clarke, Mary	..	..	1910
Clendinnen, William McEntire	..	..	1902
Cole, Percival Pasley	..	..	1909
Coleman, Robert Baxendell	..	..	1913
Cook, William	..	..	1904
Court, Christopher Charles Cole	..	..	1912

<i>M.B., Ch.B.</i>				Date of Degree.
*Cureton, Edward	..	..	..	.. 1901
Dale, John	..	..	..	.. 1908
Davies, Evan	..	..	..	.. 1911
*Davies, Fred Thomas Holloway		..	..	1906
Deakin, Frank Newstead	..	..	..	1906
Edwards, John Selwyn	..	..	..	1911
Elkington, George Ernest	..	..	..	1912
*Emanuel, Joseph George	..	..	..	1902
Emery, Arthur	..	..	..	1901
*Evans, David John	..	..	..	1913
Evans, Harvey Atkins	..	..	..	1911
Flewitt, Charles York	..	..	..	1904
Gaunt, Eric Thomas	..	..	..	1908
Gaunt, John Kennedy	..	..	..	1908
Gettings, Cuthbert Keay	..	..	..	1904
Glissan, Francis Reginald D'Alton	..	..	..	1905
Godson, John Edward	..	..	..	1901
Greenwood, Frank Redmayne	..	..	..	1903
*Hadley, Leonard Leigh	..	..	..	1905
<i>Hall, Frederick James Vincent (the late)</i>		..	..	1901
Hampson, Travis	..	..	..	1913
*Harcourt, Charles Harold	..	..	..	1901
*Haslam, William Frederick	..	..	..	1909
Hawley, Arthur	..	..	..	1901
Hayes, Lionel Chattock	..	..	..	1908
Hill, George Leonard	..	..	..	1901
Hincks, Arthur Cecil	..	..	..	1906
Holden, Oscar Madeley	..	..	..	1911
Horton, William Claude	..	..	..	1905
Houghton, William Cuthbert	..	..	..	1905
Humpherson, Elsie Mary	..	..	..	1914
Humphreys, Humphrey Francis	..	..	..	1911
*Impey, Elizabeth Stephens	..	..	..	1911
Jackson, Wilfrid Anthony Legh	..	..	..	1901
Johnson, Claude	..	..	..	1907
Jones, Charles Crawford	..	..	..	1911
Jones, Harold Bruce	..	..	..	1906
Jones, John Christopher	..	..	..	1913
Jordan, John Furneaux	..	..	..	1903

<i>M.B., Ch.B.</i>				Date of Degree.
*Kneale, James Coole	..	..	..	1903
*Lawrence, Sidney Cameron	..	..	..	1904
Longley, John Augustus Noel	..	..	..	1902
Longmore, Tom	..	..	..	1901
Lowe, John Burman	..	..	..	1912
*Loxton, William Arthur	..	..	..	1904
*Lunn, Cyril Reginald	..	..	..	1902
*Marsh, Frank	..	..	..	1905
Maskew, Charles Henry	..	..	..	1906
Mason, Philip James	..	..	..	1907
McCready, Violet Maud (Mrs. G. H. Alabaster)				1912
Mold, George Henry Chavasse	..	..	..	1909
Nelson, Ronald Douglas	..	..	..	1911
Newton, Arthur Harry	..	..	..	1911
Newton, Percy Alfred	..	..	..	1912
Nickson, Horace Clarence	..	..	..	1913
Nuthall, Alexander Wathen	..	..	..	1904
*Orford, Herbert John	..	..	..	1901
*Page, Edward Ferdinand	..	..	..	1901
Penrose, Nevill Coghill	..	..	..	1907
<i>Pepper, Henry William (the late)</i>	..	..	..	1901
Perry, Sidney Herbert	..	..	..	1903
*Pooler, Harry William	..	..	..	1901
*Pooler, John Read	..	..	..	1903
Priestley, Percival Thomas	..	..	..	1913
Prosser, Astley Bennett	..	..	..	1901
Quirke, Michael Joseph	..	..	..	1901
Ravenhill, Thomas Holmes	..	..	..	1905
*Richmond, Henry	..	..	..	1914
Ritchie, James Henry	..	..	..	1913
Ritchie, John Lichtenstein	..	..	..	1910
Roberts, Leslie Douglas	..	..	..	1914
Roberts, Walter Rowland Southall	..	..	..	1906
Salt, Charles Ernest	..	..	..	1911
Sampson, Herbert Henry	..	..	..	1909
Sanders, Arthur Addison	..	..	..	1907
Sheasby, Herbert	..	..	..	1913
Spackman, Charles Lovell	..	..	..	1912
Smith, Arthur John	....	..	..	1907

*M.B., Ch.B.*

				Date of Degree.
Smith, David Priestley ..	..	..	..	1909
*Smith, Priestley ..	..	..	..	1901
Stanley, Arthur John ..	..	..	..	1901
Terry, Harold Cairns ..	..	..	..	1909
Thomason, Henry Philip ..	..	..	..	1909
Thompson, Rupert Wesley ..	..	..	..	1907
Thornhill, Ronald Joseph Tennant ..	..	..	..	1912
*Utting, Horace Ebbage ..	..	..	..	1902
Waldron, Ethel Annie ..	..	..	..	1909
*Walker, Cranston ..	..	..	..	1910
Walker, Spencer Graham ..	..	..	..	1906
Warren, Herbert Henry ..	..	..	..	1907
Whitby, Edward Vernon ..	..	..	..	1908
<i>Whitcombe, Edmund Bancks (the late)</i> ..	..	..	..	1901
*Whitcombe, Harold Arthur ..	..	..	..	1910
Wilkinson, Alan Ayscough ..	..	..	..	1912
Wilkinson, Frederick ..	..	..	..	1905
Williams, Norman Valentine ..	..	..	..	1908
*Wynn, William Henry ..	..	..	..	1903

## M.D.S.

Humphreys, John ..	..	..	..	1901
Huxley, Frank Earle ..	..	..	..	1901
Pickerill, Henry Percy ..	..	..	..	1911
*Round, Harold ..	..	..	..	1902
Wellings, Alfred William ..	..	..	..	1914

## B.D.S

Astbury, Reginald Hudson ..	..	..	..	1905
*Bowater, William ..	..	..	..	1906
Humphreys, Humphrey Francis ..	..	..	..	1911
*Madin, William Thompson ..	..	..	..	1908
*Parrott, Arthur Hughes ..	..	..	..	1903
Whittles, John Dencer ..	..	..	..	1901

## B.Sc. (PUBLIC HEALTH).

					Date of Degree:
*Barwise, Sidney ..	..	..	..	..	1902
Dale, John ..	..	..	..	..	1909
Hawley, Sidney Herbert ..	..	..	..	..	1905
*Lyster, Robert Arthur ..	..	..	..	..	1905
*Motteram, Henry Prince ..	..	..	..	..	1903
Sisam, William ..	..	..	..	..	1905

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## FACULTY OF COMMERCE.

## M.Com.

					Date of Degree:
*Ashley, William James ..	..	..	..	..	1902
Dawson, Sidney Stanley ..	..	..	..	..	1908
*Dicksee, Lawrence Robert ..	..	..	..	..	1903
Heaton, Herbert ..	..	..	..	..	1914
*Kirkaldy, Adam Willis ..	..	..	..	..	1907
*Martin, Austen Winfield ..	..	..	..	..	1911
*Martineau, Charles Edward ..	..	..	..	..	1911
*Meyer, Stanislas Benedict ..	..	..	..	..	1910
Morley, George Henry ..	..	..	..	..	1914
Pao, Kuang Yung ..	..	..	..	..	1912
*Sanders, Thomas Henry ..	..	..	..	..	1914
Tillyard, Frank ..	..	..	..	..	1908
Woo, Ching Sung ..	..	..	..	..	1913
*Woo, Tsoo Dong ..	..	..	..	..	1912

## B Com.

*Austin, Harold Austin ..	..	..	..	..	1906
Bill, Oliver Osmund ..	..	..	..	..	1911
Bland, Wilfred ..	..	..	..	..	1905
Brindley, Philip Sidney ..	..	..	..	..	1914
Browne, Julius Basil ..	..	..	..	..	1913
Carter, Samuel ..	..	..	..	..	1914
*Chun, Wing Ku ..	..	..	..	..	1911
Ciechanowski, John Marian Vladamir de ..	..	..	..	..	1909
Edge, Cyril Barrows ..	..	..	..	..	1905

<i>B.Com.</i>				Date of Degree
Elliott, Norman Walter ..	..	..	..	1914
Farquharson, James ..	..	..	..	1909
Garnier, Pierre François ..	..	..	..	1909
Goodman, Frank ..	..	..	..	1910
Goodwin, Oliver Howard ..	..	..	..	1912
Gower, Herbert George ..	..	..	..	1914
*Green, William Herbert ..	..	..	..	1907
*Holroyd, John Othic ..	..	..	..	1906
Hooper, Rowley Shillito ..	..	..	..	1908
Jacks, Edmund Cecil ..	..	..	..	1913
Kerr, Alexander Parker Thomas ..	..	..	..	1908
Lawton, Frederick ..	..	..	..	1906
*Littleboy, Maurice ..	..	..	..	1913
Lo, Hong Nien ..	..	..	..	1912
Lovesy, Harold Frederick ..	..	..	..	1914
Luker, Frederick George ..	..	..	..	1913
*Mathews, George Vyvyan ..	..	..	..	1911
Mellor, John Leslie ..	..	..	..	1906
<i>Mott, Harold Ernest (the late)</i> ..	..	..	..	1908
*Naylor, Claude Fox ..	..	..	..	1911
Oxenham, Frederick William ..	..	..	..	1913
Pan, Chengfu ..	..	..	..	1909
Parrington, Leonard ..	..	..	..	1910
Robinson, William Field ..	..	..	..	1911
Skipworth, Bernard William ..	..	..	..	1913
Sugimura, Ennosuke ..	..	..	..	1910
*Surr, Rudolph Vincent ..	..	..	..	1913
Tannan, Mohan Lal ..	..	..	..	1912
*Tasaki, Shinji ..	..	..	..	1906
Thomas, Basil Lewis ..	..	..	..	1905
Tildesley, Horace William ..	..	..	..	1908
Twigg, William Henry ..	..	..	..	1908
Waite, Frederick ..	..	..	..	1914
Wang, Sze Zung ..	..	..	..	1911
Weidenthal, George Barthel von ..	..	..	..	1910
Wareing, Eustace Bernard Foley ..	..	..	..	1911
Westwood, Guy Bertram ..	..	..	..	1914
Whittall, William Gordon ..	..	..	..	1914
*Yen, Yeu Keh ..	..	..	..	1911

## DIPLOMAS.

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### DIPLOMA IN PUBLIC HEALTH.

Ainscow, James Allen .. .. .. ..	1909
Allen, Richard Clayton .. .. .. ..	1910
Bates, William .. .. .. ..	1913
Beazeley, Tom William .. .. .. ..	1908
Bonis, Francis William .. .. .. ..	1901
Boome, Edward James .. .. .. ..	1912
Buchanan, Donald .. .. .. ..	1910
Burnet, Robert .. .. .. ..	1908
Bygott, Albert Henry .. .. .. ..	1903
<i>Bywater, Ernest Frederick Wharton</i> .. .. .. ..	1907
Carruthers, Walter Donald .. .. .. ..	1908
Currie, John Ronald .. .. .. ..	1904
Davies, Evan .. .. .. ..	1914
Davison, William Henderson .. .. .. ..	1908
Dawson, Thomas .. .. .. ..	1904
Dyson, Thomas Edward .. .. .. ..	1902
Fenton, James .. .. .. ..	1909
Gettings, Harold Salter .. .. .. ..	1910
Hadley, Leonard Leigh .. .. .. ..	1909
Hewetson, William Morton .. .. .. ..	1909
Johnson, Claude .. .. .. ..	1909
Lyster, Robert Arthur .. .. .. ..	1901
Mason, Philip James .. .. .. ..	1910
Nevin, Alexander MacDonald .. .. .. ..	1909
Paterson, Arthur Thomas .. .. .. ..	1911
Sims, Aaron .. .. .. ..	1901
Smith, George Percy .. .. .. ..	1910
Stocks, Reginald Woolsey .. .. .. ..	1909
Tangye, Claude Edward .. .. .. ..	1909
Turner, Robert .. .. .. ..	1901
Weaver, Alfred Ernest Remmett .. .. .. ..	1908
Wilks, Morris .. .. .. ..	1908
Wood, Andrew Hamilton .. .. .. ..	1907

## TEACHER'S DIPLOMA.

## HIGHER.

Hannah, Emily Clair .. .. .. ..	1905
Mackintosh, Christina Alice .. .. .. ..	1904
Plant, David Wallace .. .. .. ..	1904
Wodehouse, Helen Marion .. .. .. ..	1903
Wyatt, Horace Graham .. .. .. ..	1904

## GENERAL

Davis, Herbert Valentine .. .. .. ..	1904
Douglas, Ella Winifred .. .. .. ..	1902
Evans, Henry Edgar .. .. .. ..	1901
Hannah, Emily Clair .. .. .. ..	1904
Henry, Albert Ernest .. .. .. ..	1904
Sutcliffe, Annie Boardal .. .. .. ..	1901
Wynn, William Benjamin .. .. .. ..	1902

## SECONDARY.

Ashmore, William Gerald .. .. .. ..	1911
Ayrton, Agnes Clarissa .. .. .. ..	1914
Banks, Reginald .. .. .. ..	1913
Barrett, Frances Mary .. .. .. ..	1913
Bartindale, Guy Cecil .. .. .. ..	1907
Booth, Nellie .. .. .. ..	1911
Buchanan, Carmen Davy .. .. .. ..	1911
Charles, Annie .. .. .. ..	1911
Cherrington, Violet Mary .. .. .. ..	1905
Colgrave, Bertram .. .. .. ..	1911
Cond, Annie Dorothy .. .. .. ..	1909
Cooke, Stella Edith .. .. .. ..	1909
Couch, Herbert William .. .. .. ..	1913
Cox, Dorothy Cécile .. .. .. ..	1912
Cox, Marguerite Anna .. .. .. ..	1912
Crutchley, Adeline .. .. .. ..	1913
Davis, Esther .. .. .. ..	1910
Duncan, Emily Grace .. .. .. ..	1909
Dunkley, Daisy Adelaide .. .. .. ..	1906
Elias, Mabel Gertrude .. .. .. ..	1909
Fayerman, Florence Margaret .. .. .. ..	1905
Foster, Evelyn Mary .. .. .. ..	1910
Freeman, Amy Helen .. .. .. ..	1908

*Teachers.*

Fretter, Arthur ..	..	..	..	..	1912
Harris, Vernon ..	..	..	..	..	1913
Hartley, Gertrude ..	..	..	..	..	1911
Hartley, Maude Elizabeth ..	..	..	..	..	1911
Headland, Charles ..	..	..	..	..	1909
Hibbord, Else Mary ..	..	..	..	..	1913
Hilbourne, George Mathias ..	..	..	..	..	1909
Hill, Esther Mary ..	..	..	..	..	1910
Hindsley, Madeline ..	..	..	..	..	1912
Honniball, Victor Fred ..	..	..	..	..	1909
Hughes, Violet Harriet ..	..	..	..	..	1913
Hunt, Elsie Maud Caruthers ..	..	..	..	..	1914
Iles, Percy Henry ..	..	..	..	..	1911
Jabavu, Davidson ..	..	..	..	..	1914
Johnson, Florence Margaret Mayfield ..	..	..	..	..	1906
Kay, Laurence Herbert ..	..	..	..	..	1913
Lewis, Dora Millicent ..	..	..	..	..	1912
Marshall, Wallace Henry ..	..	..	..	..	1912
Martin, Edgar Charles ..	..	..	..	..	1906
Naish, Christopher Garrison ..	..	..	..	..	1910
Newton, Ethel ..	..	..	..	..	1908
Newton, Mary Winitred ..	..	..	..	..	1905
Overton, Elsie Mai (Mrs. J. M. Ure) ..	..	..	..	..	1906
Parker, Edward Arthur ..	..	..	..	..	1912
Partridge, Dora Lilian ..	..	..	..	..	1912
Partridge, Gertrude Mary ..	..	..	..	..	1911
Payton, Margaret Evelyn ..	..	..	..	..	1905
Peaty, Mary Josephine ..	..	..	..	..	1914
Pimm, Annie Maud ..	..	..	..	..	1909
Robinson, Harriett May ..	..	..	..	..	1914
Rock, George Edwin ..	..	..	..	..	1913
Salaman, Elsie Esther ..	..	..	..	..	1909
Sheasby, Hilda Mabel ..	..	..	..	..	1909
Standing, Margaret (Mrs. H. Silcock) ..	..	..	..	..	1906
Stevenson, John Charles ..	..	..	..	..	1913
Taylor, Herbert William ..	..	..	..	..	1914
Thompson, Lucy Ann ..	..	..	..	..	1913
Thompson, Herbert John ..	..	..	..	..	1914
Thorncroft, Gertrude Elsie ..	..	..	..	..	1913
Turner, Christian Mary (Mrs. G. Shaw Scott) ..	..	..	..	..	1911

*Teachers.*

Vernon, Evelyn Lorna .. .. .. ..	1908
Vernon, Muriel Iris Marjorie .. .. .. ..	1913
Vibert, Eva Margaret (Mrs. Moon) .. .. .. ..	1909
Walker, Evelyn Agar .. .. .. ..	1914
Woods, Grace Catlin .. .. .. ..	1909

## MINING DIPLOMA.

Adams, Ralph .. .. .. ..	1913
Alatas, Mohamed .. .. .. ..	1911
Ashcroft, Charles Edwin .. .. .. ..	1909
Assinder, Arthur Cecil Frederick .. .. .. ..	1907
Bates, Percy Joseph .. .. .. ..	1913
Butlin, John Arundel .. .. .. ..	1912
Dandeker, Parasharam .. .. .. ..	1910
Davenport, Edward Barry .. .. .. ..	1911
Fidoe, John Walter .. .. .. ..	1904
Gray, Edward Leadbetter .. .. .. ..	1911
Grist, Henry Noel .. .. .. ..	1907
Mokadam, Baliram Pandurang .. .. .. ..	1910
Nadin, Raymond .. .. .. ..	1907
Oxley, Frank .. .. .. ..	1908
Statham, Ira Cyril Frank .. .. .. ..	1908
Thompson, William Gordon .. .. .. ..	1908
Veale, Alfred Pocock .. .. .. ..	1911
Whitehouse, James .. .. .. ..	1905

## BREWING DIPLOMA.

Adams, Ralph .. .. .. ..	1913
Ainley, William Henry .. .. .. ..	1907
Bexon, Joseph Donald .. .. .. ..	1901
Butler, Walter William .. .. .. ..	1910
Clubb, Donald .. .. .. ..	1911
Cooke, Richard Ernest .. .. .. ..	1902
Dix, Geoffrey Stuart .. .. .. ..	1912
Dupree, William .. .. .. ..	1903
Elliott, William Blake .. .. .. ..	1901
Gibbons, John .. .. .. ..	1903
Grant, Thomas Edward .. .. .. ..	1903
I'Anson, Antony Atkinson Whitfield .. .. .. ..	1906
John, Sydney Clement .. .. .. ..	1909
Jones, Archdale Mercer .. .. .. ..	1902
<i>Jones, William Vincent (the late)</i> .. .. .. ..	1904

*Brewing.*

King, William Gavin .. .. .. ..	1904
Lampitt, Leslie Herbert .. .. .. ..	1910
Lathbury, George Lionel .. .. .. ..	1904
Mears, Frank Charles .. .. .. ..	1904
Millar, Edmund .. .. .. ..	1904
Milward, Philip Alfred .. .. .. ..	1907
<i>Morley, Thomas Henry (the late)</i> .. .. .. ..	1901
Mower, George Collins .. .. .. ..	1912
Nicholson, Morton Joseph .. .. .. ..	1913
Oliver, Brian Edward .. .. .. ..	1904
Phillips, Manasseh .. .. .. ..	1905
Raine, Sydney .. .. .. ..	1905
Reavenall, Alfred Cecil .. .. .. ..	1911
Robottom, Charles Henry .. .. .. ..	1902
Robson, Stanley .. .. .. ..	1914
Rudgard, Charles Walter .. .. .. ..	1902
Russell, Clive .. .. .. ..	1905
Ryland, Chawner .. .. .. ..	1904
Seabrooke, Frank Gordon .. .. .. ..	1903
Smith, Ivan Joyce .. .. .. ..	1905
Ward, George Bernard .. .. .. ..	1910
<i>Wenman, Norman Parkes (the late)</i> .. .. .. ..	1906
White, Sydney John .. .. .. ..	1905
Wicksteed, Howard .. .. .. ..	1910
Williamson, George Havard .. .. .. ..	1908
Wright, William Edmiston .. .. .. ..	1914

## SOCIAL STUDY DIPLOMA.

Apps, Mildred Rosa .. .. .. ..	1914
Arundel, Frances Winifred .. .. .. ..	1909
Ashford, Ethel Bright .. .. .. ..	1909
Ashley, Annie .. .. .. ..	1912
Ashmore, Effie Mary .. .. .. ..	1909
Barnett, Mary Gilmore .. .. .. ..	1911
Barrows, Lucy Adeline (Distinction) .. .. .. ..	1914
Basnett, Isabel Charlotte .. .. .. ..	1912
Beard, John .. .. .. ..	1909
Bennett, Emily Théresa .. .. .. ..	1909
Boyns, Mary Gertrude .. .. .. ..	1913
Brown, Ethel Holman .. .. .. ..	1913

*Social Study.*

Brown, Mary Kathleen ..	..	..	..	1912
Carter, Harry Balston ..	..	..	..	1913
Carter, Margaret Elizabeth Mary ..	..	..	..	1909
Catchpool, Egerton St. John Pettifor ..	..	..	..	1912
Catchpool, Violet Ethelwyn Pettifor ..	..	..	..	1914
Cato-Green, Alice ..	..	..	..	1913
Clements, Richard ..	..	..	..	1912
Cole, Agnes Louise ..	..	..	..	1912
Cox, Christine (Distinction) ..	..	..	..	1913
Cramp, Amy Winifred (Distinction) ..	..	..	..	1912
Croslan, Robert Wilfred ..	..	..	..	1909
David, Juliette ..	..	..	..	1911
Donaldson, Lesley Theresa ..	..	..	..	1913
Doncaster, Gertrude Mary ..	..	..	..	1910
Edminson, Margaret Wiles ..	..	..	..	1914
Ellwood, Jennie ..	..	..	..	1912
Enock, Maud Muriel (Distinction) ..	..	..	..	1913
Fairbanks, Beatrice Helen ..	..	..	..	1913
Finnemore, Mabel ..	..	..	..	1914
Fitchett, Nora ..	..	..	..	1914
Fox, Anna ..	..	..	..	1910
France, Mabel Agnes Roy ..	..	..	..	1913
Franklin, Geoffrey Montago Ernest ..	..	..	..	1912
Fryer, Alexander Stewart ..	..	..	..	1910
Gameson, Dorothy Winifred ..	..	..	..	1913
Gilbert, Harry Edwin ..	..	..	..	1909
Goodfellow, George William ..	..	..	..	1910
Goodman, Mary Kirsten ..	..	..	..	1914
Gordon, Agnes Isabel ..	..	..	..	1914
Hobby, James ..	..	..	..	1910
Humpidge, Gertrude Phœbe ..	..	..	..	1911
Huxley, Ethel Mary ..	..	..	..	1911
Innes, George Alexander (Distinction) ..	..	..	..	1914
Jackson, Thomas Ernst ..	..	..	..	1910
Jaeger, Irmgard ..	..	..	..	1914
Jalland, Herbert Henry ..	..	..	..	1910
Jarvis, Walter Henry ..	..	..	..	1910
Jennings, Reginald William ..	..	..	..	1913
Jesper, Mabel Ethel ..	..	..	..	1912
Keay, Edith Gladys (Distinction) ..	..	..	..	1910

*Social Study.*

King, Herbert William ..	..	..	..	1909
Leeson, Cecil ..	..	..	..	1910
Lloyd, Lewis ..	..	..	..	1911
Marsh, Jessie Victoria ..	..	..	..	1914
Meaden, Sarah Katie ..	..	..	..	1911
Meredith, Annie Mary ..	..	..	..	1913
Nickalls, John Lawrence ..	..	..	..	1913
Parker, Nora Mildred ..	..	..	..	1911
Paterson, Mary ..	..	..	..	1910
Pearman, Violet ..	..	..	..	1913
Pearson, Mary (Distinction) ..	..	..	..	1910
Powicke, Nancy Collyer ..	..	..	..	1914
Preston, Cecil Rosella Mary ..	..	..	..	1910
Robinson, Elsie Margaret (Distinction) ..	..	..	..	1913
Salaman, Elsie Esther ..	..	..	..	1914
Smart, Frank Brightwell ..	..	..	..	1913
Smith, Edith Norah ..	..	..	..	1911
Stanners, Robert Whitfield ..	..	..	..	1911
Stewart, Jean Carruthers (Distinction) ..	..	..	..	1912
Strathy, Jessie Lyall Lee ..	..	..	..	1912
Thomson, Mary Horner ..	..	..	..	1911
Thorne, Joyce ..	..	..	..	1911
Tonkin, Mabel Herbert ..	..	..	..	1913
Vidal, Sylvia Mary ..	..	..	..	1910
Ward-Pearson, Nancy ..	..	..	..	1914
Wetherall, Ella Mary ..	..	..	..	1914
Whitaker, Mary Arden ..	..	..	..	1913
Wilson, Effie Grace ..	..	..	..	1913
Winder, Phyllis Devereux ..	..	..	..	1911

## SOCIAL STUDY HIGHER DIPLOMA.

Arundel, Frances Winifred ..	..	..	..	1911
Barnett, Mary Gilmore ..	..	..	..	1912
Fox, Anna ..	..	..	..	1911
Goodfellow, George William ..	..	..	..	1911
Jackson, Egbert ..	..	..	..	1913
Leeson, Cecil ..	..	..	..	1913
Paterson, Mary ..	..	..	..	1911
Smith, Edith Norah ..	..	..	..	1912
Thomson, Mary Horner ..	..	..	..	1912
Winder, Phyllis Devereux ..	..	..	..	1912

## DIPLOMA IN DENTAL SURGERY.

Ashton, Percy ..	..	..	..	..	1913
Bernstein, Arthur ..	..	..	..	..	1912
Jessop, John ..	..	..	..	..	1911
Jones, Edgar George ..	..	..	..	..	1911
Thornton, Harold Gordon Stewart ..	..	..	..	..	1914

## GRADUATE'S COMMERCE DIPLOMA.

Pettipher, Frank ..	..	..	..	..	1914
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## HONOURS.

## AT B.Sc. DEGREE.

Acton, Elizabeth (Zoology and Botany) ..	..	1908
Adams, Ernest (Chemistry) ..	..	1909
Ahmad, Abd-el-Hameed (Chemistry) ..	..	1914
Allcut, Edgar Alfred (Mechanical Engineering) ..	1908	
Asdell, John Henry (Electrical Engineering) ..	1909	
Ashford, Florence (Geology) ..	..	1902
Bagnall, Howard Henry (Chemistry) ..	..	1914
Bailey, Clement William (Chemistry) ..	..	1910
Barlow, Thomas Morgan (Electrical Engineering) ..	..	1906
Barrow, Fred (Chemistry) ..	..	1903
Bliss, Ernest William (Mathematics) ..	..	1908
Briscoe, Frederick John (Physics) ..	..	1911
Clarke, Albert Ernest (Geology) ..	..	1908
Cox, Arthur Hubert (Chemistry and Geology) ..	..	1904
Crowther, Horace Leslie (Chemistry) ..	..	1913
Dennett, Stephen Hepworth (Chemistry) ..	..	1913
Dixon, Gertrude Mary (Zoology) ..	..	1908
Eite, Walter (Geology) ..	..	1914
Elsdon, George Davidson (Chemistry) ..	..	1909
Evans, Horace George (Chemistry) ..	..	1909
Ewen, Donald (Metallurgy) ..	..	1909
Finney, Ada Maria (Chemistry) ..	..	1912
Fisher, William Ernest (Mechanical Engineering) ..	..	1906

*B.Sc.*

Flint, Henry Thomas (Mathematics and Physics)	..	..	..	..	1912
Friend, John Albert Newton (Chemistry)	..	..	..	..	1902
Gadd, Caleb Herbert (Botany) ..	..	..	..	..	1911
Galloway, Mabel (Zoology) ..	..	..	..	..	1907
Garner, Frederic Horace (Chemistry) ..	..	..	..	..	1914
Garner, William Edward (Chemistry) ..	..	..	..	..	1912
German, George Arthur (Geology) ..	..	..	..	..	1911
Gifford, Randolph Douglas (Electrical Engineering) ..	..	..	..	..	1908
Goodey, Tom (Zoology and Botany) ..	..	..	..	..	1908
Griffiths, Benjamin Millard (Botany) ..	..	..	..	..	1908
Grove, Alfred John (Zoology) ..	..	..	..	..	1907
Groves, Ruby Caroline (Botany) ..	..	..	..	..	1914
Hanford, Sydney (Mechanical and Electrical Engineering) ..	..	..	..	..	1911
Harby, Wilfrid Harry (Chemistry) ..	..	..	..	..	1908
Hawkins, Edwin Sydney (Chemistry) ..	..	..	..	..	1913
Hood, Olive Eléanora (Botany) ..	..	..	..	..	1909
Ibbs, Thomas Leonard (Physics) ..	..	..	..	..	1910
Jones, Herbert Arthur (Physics) ..	..	..	..	..	1912
Kershaw, Lawrence William (Civil Engineering) ..	..	..	..	..	1907
Knight, Frederick William, (Chemistry) ..	..	..	..	..	1914
Lobley, Henry Denzil (Mechanical Engineering) ..	..	..	..	..	1910
Lowe, Charles William (Zoology and Botany) ..	..	..	..	..	1914
Lowe, Harold Newton (Chemistry) ..	..	..	..	..	1907
Lyth, Cyril John (Civil Engineering) ..	..	..	..	..	1914
Mason, Evelyn Arthur (Geology) ..	..	..	..	..	1913
Mason-Jones, Archibald John (Geology) ..	..	..	..	..	1906
Meggitt, Frederick Joseph (Zoology) ..	..	..	..	..	1912
Merritt, Onera Amelia (Zoology) ..	..	..	..	..	1902
Morgan, Frank Leslie (Civil Engineering) ..	..	..	..	..	1912
Morris, Leslie (Geology) ..	..	..	..	..	1908
Nadejde, Horia Ioan (Electrical Engineering) ..	..	..	..	..	1911
Newton, Ethel (Zoology) ..	..	..	..	..	1907
Norton, Harold Richard (Chemistry) ..	..	..	..	..	1908
Ottewell, Barry (Electrical Engineering) ..	..	..	..	..	1910
Parkes, John Wilfrid (Chemistry) ..	..	..	..	..	1912
Partridge, George Frederick (Physics) ..	..	..	..	..	1911

*B.Sc.*

Perry, Thomas Leslie (Geology)	..	..	1910
Phillips, Percy (Physics) ..	..	..	1901
Pipe, Thomas Sylvanus (Electrical Engineering)	..	..	1905
Poulton, Ethel Maud (Botany) ..	..	..	1910
Purves, Alice Alison (Botany) ..	..	..	1910
Reade, Thomas Harold (Chemistry) ..	..	..	1912
Rock, George Edwin (Mathematics) ..	..	..	1912
Shercliff, William (Geology) ..	..	..	1912
Scarborough, Harold Archibald (Chemistry) ..	..	..	1912
Scott, George Norman (Mining) ..	..	..	1913
Seyfried, John Thaddeus de (Mining) ..	..	..	1907
Silvester, Clara Emily (Geology) ..	..	..	1906
Smith, Gavin Hildick (Mining) ..	..	..	1907
Sonnenschein, Christopher Edward (Mechanical Engineering) ..	..	..	1909
Stirrup, Henry Harold (Zoology and Botany) ..	..	..	1911
Taylor, Harry (Civil Engineering) ..	..	..	1908
Thorneycroft, William Ernest (Metallurgy) ..	..	..	1914
Todd, George William (Physics) ..	..	..	1907
Troughton, Beatrice Ellen (Zoology) ..	..	..	1908
Tunbridge, Edward William (Mechanical Engineering) ..	..	..	1905
Turner, Bertrand (Chemistry) ..	..	..	1913
Twiss, Douglas Frank (Chemistry) ..	..	..	1902
Villiers, Percy William (Civil Engineering) ..	..	..	1909
Walker, Cranston (Physiology) ..	..	..	1907
Ward, Percy James (Chemistry) ..	..	..	1913
Watson, Ernest Ansley (Mechanical and Electrical Engineering) ..	..	..	1907
Webb, Harry William (Chemistry) ..	..	..	1913
Wilkes, Samuel John Herbert (Mechanical Engineering) ..	..	..	1906
Whitworth, Ernest Stanley (Mathematics) ..	..	..	1912
Whitehouse, James (Mining) ..	..	..	1906
Whitehouse, Richard Henry (Zoology) ..	..	..	1907
Wynn, William Benjamin (Physics) ..	..	..	1913
AT B.A. DEGREE.			
Kirk, Richard Thomas Francis (Latin, Greek, and French) ..	..	..	1901

## ASSOCIATE MEMBERS OF THE GUILD OF GRADUATES.

- Barrett, Helen Mary, M.A., (Lond.)  
 Billington, William, M.B., F.R.C.S.  
 Blake, James Edward Huxley, B.A. (Cantab.), B.Sc. (Lond.)  
 Branson, Guy Joseph, B.A., M.D. (Lond.)  
 Carter, Mrs. E. M.  
 Cullis, Frederick John.  
 Daniell, George Frederick, B.Sc. (Lond.)  
 Ellis, Mrs. Bernard.  
 Featherstone, William Barltrop, M.D. (Lond.)  
 Finney, William Arthur, B.A. (Lond.)  
 Fridlander, Ernest David, B.Sc. (Lond.)  
 Gamgee, Leonard Parker, F.R.C.S.  
 Harrold, Edith  
 Hooson, John Edward, B.Sc. (Lond.)  
 Jenkyn-Brown, Lilian Evelyn, M.A. (Lond.)  
 Jordan, Walter Ross, M.D. (Lond.)  
 Jones, Oliver.  
 Lay, Charles Johnson, B.A. (Cantab.)  
 Ledsam, Henry Thomas Clutton Salt, B.A. (Lond.)  
*Lloyd, Emily Jane, B.Sc. (Lond.)*  
 Malins, Joseph, Jun., M.A. (Lond.)  
 Marks, Benjamin, B.A. (Lond.)  
 Marris, William Arthur, M.D. (Lond.)  
 Marson, Cyril Darby, M.R.C.S., L.R.C.P., L.D.S.  
 Melson, George Hyde, M.D. (Lond.), M.R.C.S.  
 Moncrieff, Lady.  
 Myers-Ward, Charles Frederick, M.R.C.S., L.R.C.P.  
 O'Dowd, John Austin, M.B.  
 Pugh, John Vernon (Senior Engineering Diploma)  
 St. Johnston, George, M.D. (Lond.)  
 Southall, Gertrude Eliza.  
 Stansbie, John Henry, B.Sc. (Lond.)  
 Stern, Arthur Landauer, D.Sc. (Lond.)  
 Stern, Rose, B.Sc. (Lond.)  
 Sudborough, John Joseph, D.Sc. (Lond.)  
 Teichelmann, Ebenezer, F.R.C.S.  
 White, James Atkin Henton, M.D., F.R.C.S.

# UNDERGRADUATES IN RESIDENCE.

DURING THE SESSION 1913-14.

---

- 2270 Abramovitch, Abram Anatole.
- 1468 Abrahams, Reginald George.
- 1701 Adam, Peter.
- 2251 Adams, Dorothy Lilian.
- 2245 Adams, Edith May.
- 1727 Adams, Frederick William.
- 2039 Adcock, Blanche Matilda.
- 1912 Adcock, Fred.
- 2012 Ahmed, Abdel Aziz.
- 2129 Ainscow, Gladys Ellen.
- 1652 Airston, Wilhelmina.
- 2117 Aldridge, Frederick George.
- 2206 Allam, Mostafa.
- 1561 Alldridge, Edward Gordon.
- 1944 Allkins, Archibald Thomas.
- 2204 Allkins, Wilfred Samson.
- 1914 Allpress, Charles Frederick.
- 2255 Alurralde, José Maria.
- 1997 Alurralde, Juan Carlos.
- 1708 Amiss, Winifred Helen.
- 1894 Andrews, Rosalie Mary.
- 1705 Andrews, William Archibald.
- 2084 Ash, Edwin Baylis.
- 1210 Ashby, Elizabeth Labrey.
- 1864 Ashby, Mabel Kathleen
- 2217 Atherton, Charles William.
- 2180 Ault, Mary Kathleen.
  
- 1976 Baggs, Dorothy Gladys.
- 1899 Bagnall, Howard Henry.
- 1981 Bailey, Hilda Muriel.
- 1943 Baird, Andrew Arthur Dering.
- 2096 Bambury, Horace Middleton.
- 1939 Banwell, Clive.
- 1951 Barber, Winifred Henty.

- 1955 Barker, Gladys Mary.  
1930 Barnard, Clara Lilian.  
1898 Barnes, May.  
1726 Barwell, Hugh William Eames  
1397 Barwise, Henry Balfour.  
1905 Bastable, Ralph Douglas.  
1900 Bayliss, Ralph Garratt.  
2193 Beardmore, Ernest William.  
2243 Beards, John Broadhouse Herbert  
1699 Beardsmore, Tom Archibald.  
1901 Bellison, Mark.  
2062 Bennett, Harold Douglas.  
1787 Bennett, Herbert.  
2011 Bensaude, Margarida Rachel.  
2168 Bertram Edith.  
2236 Bevon, William Victor.  
2038 Bick, Freda Ann.  
1771 Biddulph, Richard.  
2022 Billingsley, Florence Kate Amelia.  
2067 Birkbeck, John Wesley Lightbourne.  
2207 Bishop, Edgar William.  
1520 Bladwell, Leonard Joseph  
2234 Blakey, Richard Henry.  
2203 Blumberg, Ure-Leiba.  
2168A Boissier, John Scobell  
2166 Boone, Gladys.  
1999 Botterill, Eva Mary.  
2163 Brain, Charles Kimberlin.  
2061 Brampton, Charles Clifford.  
2235 Brettell, William Percy MacDuff  
1889 Brindley, Philip Sidney.  
2156 Bristol, Blanche Muriel.  
2178 Brown, Frederick John.  
1178 Brown, John Clifford.  
2066 Burman, Humphrey Woolaston  
1264 Burt, Marion Mildred Barrow.  
2173 Byles, Agnes Elizabeth.  
2087 Cadman, Charles Joseph.  
1987 Caleb, Clement Daryl Nicoll

- 2105 Callow, Ernest Harold.  
2160 Calway, Mary.  
1850 Carr, Dorothy Marguerite Olivia.  
2149 Carritt, Harry William.  
1932 Carter, Nellie.  
1346 Carter, Samuel.  
2015 Cartwright, Richard Percival.  
1724 Cash, Edith Fanny.  
2076 Cashmore, Albert Eric.  
1827 Cass, Leonard Vivian.  
1970 Catlow, Helen Muriel.  
1937 Chaloner, Nora Irene.  
2205 Chang, Kwang-Tuh.  
2260 Chang, Nai-Yen.  
2018 Chapman, Gordon William  
2185 Chattaway, Dorothy.  
2035 Cheng, Pinzen.  
2146 Chiang, Kuo Foo.  
2250 Chinn, Alice Margaret.  
1808 Chou, Hsi.  
1569 Clapham, Maude Marion  
1791 Clay, Arthur Frederick.  
1581 Clements, William Arnold.  
1765 Clews, Hollis Hudson.  
1533 Clifford, George Herbert Workman.  
2007 Cochrane, Thomas George Frederick.  
1355 Coghill, Elfrida Hester Brooke.  
2242 Collins, Bertie Amos.  
2120 Collins, Charles Edwin.  
1777 Collins, Horatio John.  
1975 Commander, Gladys Norman.  
2253 Cond, Katherine Mary  
2077 Cook, Annie.  
2152 Cooksey, Gladys Mary.  
2144 Cooper, Ada.  
2081 Cordwent, George Henry Antony  
2130 Coupland, Ernest.  
1995 Crome, Frank Thomas.  
1560 Crosskey, John Henry.

- 1991 Crump, Gwendolen.  
1819 Cumming, Gertrude.  
1643 Curtin, Annie.  
1920 Dakin, Charles Frederick.  
1778 Dance, Marguerite Deborah Seton.  
1768 Daniels, John Henry.  
1130 Das, Mathura Mohan.  
2187 Date, Alfred Horton.  
1788 Davies, Eulalie Mabel.  
2277 Davies, Jessie Marion.  
2083 Davies, William Morley.  
2134 Daynes, Harold Ashley.  
2161 Dellow, Janet Mary.  
1704 Dervichian, Krikor Garabet.  
2094 Dickin, James Herbert.  
1923 Docherty, Susan Janet.  
2237 Doherty, Frank James.  
1954 Dolphin, Frederick George.  
1559 Donovan, Lillie Mary.  
2225 Druller, Isabel Daisy.  
1847 Druller, Vivian Vaughan.  
2032 Dukes, Joseph Harmer.  
2209 Duncan, John Samuel.  
2033 Duncan, Percy Richard.  
1918 Dutton, George Bernard Newman.  
2265 Edge, Elizabeth.  
1739 Edghill, Joan.  
2131 Edwards, John.  
2189 Eggleton, Leslie Frederick.  
2140 Ehrhardt, Dorothy Agnes Alice.  
1745 Eite, Walter.  
1863 Elkington, Arthur Edward Hardwicke.  
1963 Elliott, Norman Walter.  
1735 Ellis, Owen William.  
1927 Ellsmoor, Lucy Annie.  
2036 Elsey, Edwin.  
1513 Evans, Alice Muriel.  
1961 Evans, Cyril Lloyd.  
2052 Evans, Gladys, Edith

- 1851 Evans, Gwen.  
2228 Feitelsohn, Leon.  
1952 Ferrario, Marie Therese.  
2046 Farrow, Edith May.  
1718 Field, Arthur John.  
1886 Fisher, Gladys May.  
2060 Fisher, Hilda Grace.  
1974 Flavell, Marion.  
1098 Foley, John Edward.  
1983 Follows, Annie Hilda.  
1959 Fox, Hugh Edward Mills.  
1925 Foy, Thomas Arthur Wyness.  
2150 Freitas, Jose Pedro de.  
2197 French, Edith Helen.  
1710 Frew, Margaret Annie.  
1568 Fullwood, Florence Kathleen.  
1755 Fuoss, Armin Frank Maximilian.  
2132 Gale, Herbert Anthony.  
1906 Garner, Frederick Horace.  
2220 Gawdat, Sayed.  
1934 George, Alan Lee.  
1971 Gibbons, Florence.  
1972 Gibbons, Margaret Elizabeth.  
1595 Gibson, Mary Tregellas.  
1979 Gilberthorpe, Violet Hilda.  
1563 Gill, Koch Harry.  
1786 Ginn, Ethel Mary.  
2271 Givotovsky, Victor Timothy.  
1861 Goddard, Archibald Edwin.  
1700 Godfrey, Harold Graham.  
1891 Goldstraw, Edwin Walter.  
2127 Goode, James.  
1725 Goodman, Gilbert Neville.  
1809 Goodwin, Muriel Annie.  
1887 Gothard, Clifford Frederic.  
1935 Graham, Reginald Portman.  
2263 Grant, Reginald Emile Duhant.  
1772 Greaves, Harry.  
2165 Greaves, Helen Marjorie.  
2114 Green, Alice Amy.

- 2213 Greenan, Clement John.  
2030 Greenwood, Gladys.  
2088 Gross, Asher Ansell.  
2065 Grove, George.  
1794 Groves, Ruby Caroline.  
2249 Growcott, Gladys Myra.  
2231 Guest, Aubrey Ward.  
1731 Guise, Ewart Stanley.  
  
2219 Haddock, Arthur.  
2196 Hale, Edith Mary.  
1998 Hall, Herbert William.  
1751 Hancock, Bernard Oswald.  
2158 Harcourt, Wilfred.  
1990 Harris, Lucy.  
2191 Harris, Percy Joseph.  
1775 Harrison, Arthur Cyril.  
2230 Harrison, Clarence.  
1842 Harriss, Irene Vernon.  
1748 Hartley, George Clevedon.  
2031 Hartley, William Shaw.  
2280 Hartshorne, Norman Holt.  
1769 Haselden, Annie.  
1720 Haselden, Robert.  
1962 Hastilow, Cyril Alexander Frederick.  
1509 Hayward, Arthur Ernest.  
1881 Hayward, Harold Victor.  
2238 Hearn, Charles Denis.  
2097 Heaton, Walter Basil.  
1931 Hegan, Horace James.  
1476 Hemingway, Mary Isabel.  
2239 Hendriks, Eileen Mary Lind.  
2151 Henriques, Francisco Firmino.  
2091 Hewins, Wilfred Thomas.  
2221 Hewitt, Francis Edward.  
2138 Hewitt, Wilfred Joseph.  
2099 Hickinbottom, Wilfred John.  
2090 Hill, Harold Aubrey.  
1766 Hill, Harold Belfit.  
1749 Hillman, Eric Chester.

- 1876 Hinchley, Jessie Emily.  
1781 Hipkins, Charles Hammond.  
2183 Hipkins, Gladys.  
2252 Hipkiss, Martha.  
2041 Hodgson, Mabel Gladys.  
2175 Hogg, Eleanor Doris.  
2247 Holden, Eric George Theodore.  
822 Holliday, Catherine Elizabeth.  
1711 Holloway, Dorothy.  
1825 Holloway, Jessie Elizabeth.  
1941 Hopkins, Edward Lambert.  
1936 Hopkins, Francis Albert Reginald.  
1878 Hopkins, Graeme.  
1743 Hornby, Arthur John Ward.  
1717 Horniman, Robert Henry.  
2016 Horton, Charles Herbert.  
2118 Hothersall, Hubert.  
2262 Houghton, Katherine Frances Brierley  
1574 Howell, Charles Joseph.  
2192 Howson, Charles William Harold  
1933 Hsi, Te-Mou.  
2227 Hsier, Yün.  
2264 Hsü, Tong-fan.  
2233 Hughes, Lydia Mary.  
1763 Hughes, Oscar Cecil Lawrence.  
2141 Hughes, Richard Leslie.  
1750 Hulse, William.  
1980 Hutchin, Doris.  
2045 Hutchinson, Violet Mary.  
1977 Hutchison, Frances Mary.  
2073 Hyde, Charles Walter.  
2266 Ibbs, Daisy Louisa.  
2064 Jackson, William Hickin.  
1792 Jeffcott, Wilfrid George.  
2029 Jeffery, Gladys Marguerite.  
1741 Jennens, Arthur Ernest.  
1366 Jeyes, Dorothy.  
1949 Jeyes, Olive.  
2164 Johnson, Doris Maud.

- 1713 Johnson, Ethel Beatrice Mary.  
2125 Johnson, Marie Edith Muriel.  
1693 Jones, Eric Shirley.  
1697 Jones, Eveline.  
1672 Jones, Frederick Allan Selous.  
1826 Jones, Gertrude Sarah Ann.  
1716 Jones, Leslie Amiel.  
1758 Jones, Mary Aline.  
1797 Jones, Samuel John.  
2145 Jordan, Leslie Tiel.  
2103 Kadisch, Anna.  
1810 Kang, Shih-Ching.  
2222 Katz, Abraham Isaak.  
1740 Kay, Florence Emelie.  
1869 Kerby, Theo Rosser Fred.  
2256 Kershaw, Eveline.  
2098 Ketelbey, Doris Mabel.  
2179 Keyte, Beatrice Margaret.  
1680 King, Cyril Henry Marshall.  
2229 Kirby, Walter.  
1764 Kite, John Clarence.  
2020 Knight, Clarrie May.  
1790 Knight, Frederick William.  
2210 Lamb, Francis William Mason.  
1487 Langdale-Smith, Henry Guantlett.  
2019 Larcombe, Ada.  
1774 Lardge, Florence Mabel.  
2080 Layton, Dorothy Ruth.  
1812 Lee, Pao Ling.  
2211 Lee, Wen-Whua.  
1564 Lees, Francis Charles.  
2008 Leheta, Mohamed Fahmy.  
2051 Lerrigo, John Henry.  
2223 Lewis, Charles Gordon.  
2244 Lewis, Dorothy Annie.  
2136 Lewis, Wilfrid Edwin.  
1811 Liang, Shu-Chao.  
2215 Lightowler, Hilda.  
1958 Lines, Leslie.

- 2177 Lloyd, John Jordan.  
2026 Lloyd, Joseph Henry.  
1913 Lloyd, Norah Dean  
2248 Lloyd-Davies, Allan Wyndham.  
1845 Loh, Sze-Shung.  
1754 Lones, John Arthur.  
2106 Long, Bernard Wilfrid.  
2135 Loverdos, Demetrios Spiros.  
2181 Lovestone, Miriam Zipporah.  
1762 Lovesy, Harold Frederick.  
1746 Lowe, Charles William.  
2121 Lucas, Christopher Hollins.  
2133 Ludford, Lawrance.  
1784 Lyth, Cyril John.  
1938 Mackenzie, Louis.  
2056 Mackintosh, Charles Hubert.  
2124 Macniven, Duncan.  
2153 Malek, Kamel Marcus Abd-el.  
2195 Malin, Frederick George.  
1706 Mansfield, Eric Oswald.  
2055 Marrian, Jessie Winifred.  
1773 Marsh, Nora Alice.  
1709 Marshall, Hazel.  
2013 Marsland, William Robert.  
2113 Marson, Eric Newton.  
2182 Martin, Florence.  
1992 Martin, George.  
1895 Martin, Gerald Patrick.  
1761 Mason Edward.  
1681 Mathie, George Cecil.  
2169 Matthewson, Laura Gertrude.  
2025 Maxwell, Florence Evelyn.  
2028 McGeoch, Alexander.  
2119 McIntosh, Emma Russell.  
1722 McIntosh, Nora Russell.  
2002 McLaren, Dora.  
2154 McMichael, Gerald Joseph Wyld  
2089 Mendonça, Manuel Santos de  
2009 Messenger, Walter George.

- 2109 Midgley, Charles William.  
1872 Miles, Abraham Arthur.  
1483 Millington, Arthur David.  
1744 Millner, William.  
1752 Mills, Laurence Harry.  
2104 Mole, Constance Mary.  
1903 Moreton, Frank Edward.  
2157 Morris, Rebecca Emily.  
2208 Moseley, George.  
2079 Mottram, Frances Margaret.  
1893 Mowinckel, Conrad Helge.  
1601 Mulready, Richard Thomas  
2170 Mundey, Pattie.  
  
2143 Naylor, Norman.  
1947 Nevitt, John Basil.  
1576 Newey, Dudley Shaw.  
1760 Newey, Frank.  
1982 Newill, Elsie Vaughan.  
2274 Newman, Eleanor Grace.  
2023 Newman, Winifred Lilian  
1907 Newnham, Eric Victor.  
2275A Nichol, Dorothy.  
2063 Nicholls, Esmond Hubert Lawson.  
2068 Nicholls, Noel Albert.  
2110 Nicholson, Alexander John.  
1505 North, Alfred William.  
  
1929 Osborne, Hilda Bessie Rosa.  
2093 Osborne, Phillip John.  
2257 Overend, Margaret Winifred.  
2112 Overton, Doris Muriel Hands.  
2017 Oxenham, Herbert Charles.  
  
1484 Parkes, Oscar.  
2100 Parkes, William Alfred Whitehouse.  
1946 Parry, Douglas Howell.  
1651 Patterson, Harry.  
1984 Payne, Alice.  
1852 Pearce, James George.  
1736 Pearsall, Lucy Ellen.

- 1904 Pearson, Edgar McCully.  
2044 Pegg, Elsie Jane.  
2014 Pelton, Sibyl Ingram.  
2101 Pennell, Lillian Mary.  
2201 Perrett, Arthur Joseph.  
2006 Perry, Charles William.  
1945 Pickering, Ethel May.  
1046 Pinson, Kenneth Bernard.  
1562 Pinson, Raymond Fearle.  
1818 Pither, Florence Mary.  
1973 Platt, Muriel Grace.  
1728 Pool, William John.  
2279 Poole, Marion.  
1605 Poolton, Ada Lucy.  
2003 Portway, Cedric.  
1734 Povey, Sydney Douglas.  
2037 Powell, Elsie Gladys.  
1733 Powell, Harry Stanger.  
1917 Powell, Henry Spencer.  
1696 Poxon, Lydia.  
1730 Price, Ralph Brian.  
1805 Prosser, Catherine Lavinia.  
1668 Prosser, Mabel Eliza.  
2167 Pryor, Gwendoline Marjorie.  
1684 Rackstraw, Marjory.  
2268 Rai, Aftah.  
2024 Rainsford, Gladys Ada.  
1498 Raison, Cyril Alban.  
1828 Ray, Myrtle Matilda.  
1414 Read, Marion Althea.  
2123 Reader, George Frederick.  
2629 Redwood, Ivor Charles.  
1558 Rees, Gwendolen Mary.  
1712 Reeve, Mabel Gladys.  
1883 Reicher, Casimir.  
2050 Rennie, Dennis Charles.  
2005 Richards, Christopher Alfred.  
935 Richards, Frederick Harold.  
2085 Richardson, Marris Colquhoun.

- 628 Richmond, Henry.  
1922 Riley, Evelyn Mary.  
2194 Ring, Julius.  
1499 Roberts, Leslie Douglas.  
1966 Robins, Valeria Letitia.  
2212 Robinson, Clifford Llewellyn.  
2275 Robinson, Elsie May.  
1557 Robinson, Harriet May.  
1514 Robinson, Howard Martin.  
1968 Roe, Frederick Charles.  
2259 Ropp, Stephen Godfrey.  
1485 Rosas, Agustin.  
1232 Rosas, Pedro Nolasco.  
1759 Rose, Baron Theodore.  
1554 Rose, William.  
1908 Roth, Helen.  
1897 Round, Benjamin James Stacy.  
2040 Rudd, Frances May.  
1896 Sadler, Dorothy.  
1921 Sadler, Ferrebee.  
2190 Sage, John Leigh Percy.  
1645 Salama, Farag.  
1965 Salem, Mohamed Abdalla.  
2162 Samuelson, Nissen.  
1742 Sanderson, Joyce Elizabeth.  
1916 Saunders, Constance Dorothy.  
1953 Sarjeant, Douglas Leslie.  
1602 Schulitz, Walter.  
2273 Scott, Edwin Cooper.  
2200 Scott, Gerald Hugh.  
2142 Seal, Ada May.  
1703 Sears, Harold George.  
2241 Sen Gupta, Kiran Kuinar.  
1721 Sharpley, Elsie May.  
2122 Shelley, Kenneth Jack.  
1969 Sherlock, Helen Travers.  
1508 Shufflebotham, Hilda Nora.  
2001 Silk, Nellie.  
2224 Simmons, Mabel.

- 2075 Sims, Carrie.  
1910 Slim, Charles John.  
2218 Smedley, Joseph Hanson.  
1506 Smith, Alfred Percy.  
1503 Smith, Arthur Cloutesley  
1832 Smith, Augusta Mary.  
2172 Smith, Doris Eliza.  
1926 Smith, Gilbert Ernest.  
1344 Smith, Herbert.  
2159 Smith, Nina.  
1753 Smith, Reginald Huntley.  
1844 Southerton, Laurence Cyril.  
1989 Speller, Naomi.  
1565 Spurway, Eustace Edgar Roberts.  
1846 Staley, Robert James.  
2254 Stamirowski, Janusz L. de.  
2246 Stanton, Doris Elsie Florence.  
2034 Starley, Bertram Allan.  
1780 Starley, James Reginald.  
2000 Stevens, Constance Miriam.  
1515 Steward, Cyril Adams.  
1729 Steward, Sydney Tibbetts.  
2202 Stewart, Peter.  
2137 Stileman, Richard.  
2027 Storer, James Arthur.  
2128 Stringer, Hubert Leslie.  
1738 Stubbs, Albert.  
1145 Stubbs, Clement Massey.  
1714 Sudki, Awad.  
2070 Summers, John Kenneth.  
2199 Summerton, Harold.  
1950 Sweetinburgh, Florence Ellen.  
2226 Tang, Ying.  
2176 Taunton, Margarita Frances Sarah.  
2276 Taylor, Dorothy Mary.  
1803 Taylor, Gladys Maud.  
1737 Taylor, Hubert.  
2010 Taylor, John Lupton.  
1723 Taylor, Marjorie Hall.

- 1396 Teall, Cecil George.  
1960 Teng, Jui Hui.  
1572 Thomas, Bertha Pemberton.  
1655 Thomson, Arthur Peregrine.  
2267 Thornton, Leonard Neville.  
1664 Thornton, Pensam.  
2214 Tidman, Cecil Francis.  
1715 Toeplitz, Jan.  
1942 Tomlinson, Mabel Elizabeth.  
1843 Tongue, John William Collis.  
1395 Tosh, Fannie Helen.  
2184 Townshend, Desmond Villiers.  
1719 Tregea, William Herbert.  
1732 Trimble, Claude Douglas.  
1988 Turner, Esther Marguerite.  
1848 Turner, Gladys Maude.  
1849 Turner, John Ewart Shipley.  
2107 Turner, Thomas Henry.  
1545 Tye, Charles Harold.  
1443 Underhill, Eric.  
1862 Underwood, Elsie Amy.  
1940 Urmston, Frank.  
1909 Wagner, Ethelbert Godwin Stockwell.  
1890 Waite, Frederick.  
2116 Walker, Charles.  
2261 Waller, Ellen Catherine.  
1793 Waller, Grace Hutchinson.  
1770 Ward, Luther Singlehurst.  
2126 Ward, William Evan.  
1924 Wardle, John Harold.  
2171 Wastell, Marjorie.  
2186 Watanabé, Hideó.  
1638 Watkins, William Lewis.  
2216 Wayne, Philip Arthur.  
1687 Wearing, Cyril Murray.  
2092 Weatherhead, William Rupert Alfred  
1543 Webb, Harry William.  
2111 West, Alfred Mallet.  
1429 Weston, John Theodore Spencer.  
2072 Westrop, Sydney Albert.

- 2074 Wheeler, Mary Elizabeth.  
1956 Whinfrey, Charles George.  
1796 Whitehead, Annie Marguerita  
1996 Whitehead, John Henry Cyril.  
1978 Whitehouse, Bertha.  
1478 Whittall, William Gordon.  
2174 Wightman, Evelyn Miriam.  
2148 Wilkes, Lucy.  
1611 Wilkinson, Miriam.  
1892 Wilkinson, William Evans.  
1915 Williams, Clara Annette.  
2053 Williams, Hilda Olivia Pauline  
2155 Williams, Margaret Aileen.  
2054 Williams, Mary.  
2095 Williamson, Cyril George.  
2240 Willis, Honor Margaret.  
2108 Willstrop, John William Wesley.  
2115 Wilson, Ernest Perry Bradley.  
1985 Windmill, Brenda Sybil.  
1994 Winter, Geoffrey.  
2059 Withey, Ellen Jane.  
1993 Wood, Dorothy.  
1757 Wood, Charles Edmund.  
1400 Wood-White, Bernard  
2082 Wooldridge, Flora.  
2102 Workman, Arthur John.  
1504 Worsley, Allan Nathaniel.  
2139 Worthington, Godfrey Francis Paget  
1606 Wragg, Ethel.  
2278 Wright, Elsie May.  
2147 Wright, Winifred.  
934 Wrigley, Edward Ernest  
1957 Wrigley, Dorothy.  
2232 Wu, Chen-Tsung.  
2078 Yates, Bessie.  
2258 Yates, Esther.  
2198 Yone, Nai.  
1986 Young, Dorothy.  
2188 Zimmermann, Arthur Harold Charles Adams.  
1214 Zimmerman, Arthur Ulric.

## STUDENTS ATTENDING CLASSES.

DURING SESSION 1913-14.

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### STUDENTS IN SCIENCE, ARTS, AND COMMERCE.

Abramovitch, Anatole Abram.	Bagnall, Howard Henry.
Acton, Elizabeth.	Bambury, Horace Middleton.
Adam, Margaret Neilson.	Banwell, Clive.
Adam, Peter.	Banwell, Frederick Nevil.
Adams, Auriol Charles Andrew.	Barber, Winifred Henty.
Adams, Douglas Raymond.	Barbor, Herbert Reginald.
Adams, Frederick William.	Barker, Gladys Mary.
Adams, Ralph.	Barlow, John Henry.
Adcock, Fred.	Barnard, Clara Lilian.
Ahmad, Abd-el Hameed.	Barnes, May.
Ahmed, Abdel Aziz.	Barretto, José Vieira.
Airston, Wilhelmina.	Barrows, Lucy Adeline.
Alcock, William Desmond Evelyn.	Barwell, Hugh William Eames.
Aldridge, Frederick George.	Barwise, Henry Balfour.
Allam, Mostapha.	Bayliss, Ralph Garratt.
Allen, Alfred Joseph.	Beards, John Broadhouse Herbert.
Allen, Kate.	Beardsmore, Tom Archibald.
Allpress, Charles Frederick..	Beebee, Ethel May.
Allkins, Archibald Thomas.	Bennett, Harold Douglas.
Allkins, Wilfred Samson.	Bennett, Herbert.
Alsop, Horace.	Bettridge, Gladys Hannah.
Alurralde, José Maria.	Bevon, William Victor.
Alurralde, Juan Carlos.	Biddulph, Richard.
Amiss, Winifred Helen.	Birkbeck, Joseph Wesley Lightbourne.
Andrews, William Archibald.	Bladwell, Leonard Joseph.
Apps, Mildred Rosa.	Blakey, Richard Henry.
Atherton, Charles William.	Blans, Nicholaus Theodorus.
Ayrton, Agnes Clarissa.	Blumberg, Ure-Leiba.
Backhouse, Basil Henry.	Bocking, William James.
Backhouse, Edith Mary.	Boissier, John Scobell.
Badre, Abd-al-Aziz.	
Badre, Abd-el-Magied.	

- |   |                              |
|---|------------------------------|
| Bourne, Joseph.                         | Chou, Hsi.                   |
| Brain, Charles Kimberlin.               | Chu, Chang-Nien.             |
| Brampton, Charles Clifford.             | Clapham, Maude Marion.       |
| Brindley, Philip Sydney.                | Clark, Janet Hay.            |
| Bristol, Blanche Muriel.                | Clay, Arthur Frederick.      |
| Broodbank, Walter Cyril.                | Clifford, George Herbert     |
| Brooke, Grace Marjorie.                 | Workman.                     |
| Brown, Frederick John.                  | Clive, J. B.                 |
| Brown, William Alfred.                  | Cochrane, Thomas George      |
| Burman, Humphrey Woollaston.            | Frederick.                   |
| Bushill, Eric James Newsome.            | Collier, Florence.           |
| Cadbury, Marion Janet.                  | Collins, Bert Amos.          |
| Cadman, Charles Joseph.                 | Collins, Charles Edwin.      |
| Caleb, Clement Daryl Nicoll.            | Collins, Horatio John.       |
| Campion, Ethel Elizabeth.               | Cond, Katherine Mary.        |
| Campion, Grace Mary.                    | Cooke, Hugh Stephenson.      |
| Callow, Ernest Harold.                  | Cooper, Ada.                 |
| Cannon, Elizabeth.                      | Cope, Dora Gwendoline.       |
| Carr, Dorothy Marguerite<br>Olivia.     | Cordwent, George Henry       |
| Carritt, Harry William.                 | Anthony.                     |
| Carter, Nellie.                         | Corke, Stanley George.       |
| Carter, Samuel.                         | Coupland, Ernest.            |
| Cartwright, Richard Percival.           | Crome, Frank Thomas.         |
| Cash, Edith Fanny.                      | Crowther, Frederick Kenneth. |
| Cashmore, Albert Eric.                  | Crowther, Horace Leslie.     |
| Catlow, Helen Muriel.                   | Crowther, Oswald Hubert.     |
| Cass, Leonard Vivian.                   | Curtin, Annie.               |
| Catchpool, Violet Ethelwyn<br>Pettifor. | Dakin, Charles Frederick.    |
| Chaloner, Nora Irene.                   | Dale, Edith Mary.            |
| Chapman, Gordon William.                | Dance, Marguerite Deborah    |
| Chang, Kwang-tuh.                       | Seton.                       |
| Chang, Nai-Yen.                         | Daniels, John Henry.         |
| Chattaway, Dorothy.                     | Dâs, Mathura Mohan.          |
| Cheng, Pinzen.                          | Dashwood, Ronald Phillimore. |
| Chesney, Harry.                         | Date, Alfred Horton.         |
| Chiang, Kuo Foo.                        | Davidson, Robert Huntley.    |
|   | Davies, Eulalie Mabel.       |
|   | Davies, Harry.               |

Davies, William Morley.	Finney, Ada Maria.
Davis, David.	Firkins, Mary.
Davis, Esther.	Fisher, Edmund.
Davis, Francis John.	Fisher, Gladys May.
Dent, Francisca.	Fitchett, Nora.
Dervichian, Krikor Garabet.	Fox, Hugh Edward Miles.
Dickin, James Herbert.	Fox, Thomas Arthur Wyness.
Diz, Miguel.	Freitas, José Pedro de.
Docherty, Susan Janet.	Frew, Margaret Annie.
Docker, Margaret Ruth.	Fullwood, Florence Kathleen.
Doherty, Frank James.	Fyson, Geoffrey.
Dondé, Raul.	
Drake, Winifred May.	Gale, Herbert Anthony
Dukes, Joseph Harmer.	Gamsaragan, Yervant A.
Duncan, John Samuel.	Gawdat, Sayed.
Duncan, Percy Richard.	Gell, Dorothy.
Dutton, George Bernard Newman.	George, Alan Lee.
Eales, Winifred Fulford.	Georgiadis, George Argyrios.
Edge, Elizabeth.	Gibbons, Florence
Edghill, Joan.	Gibbons, Margaret Elizabeth.
Edminson, Margaret Wiles.	Gibson, Frances Millicent.
Edwards, John.	Gibson, Mary Tregellas.
Ehrhardt, Dorothy Agnes Alice.	Gibson, Ruth Eleanor.
Ehrhardt, Herbert Wilfrid.	Gilbert, Mason George.
Elkington, Arthur Edward Hardwicke.	Givotovsky, Victor.
Elliott, Norman Walter.	Gleditsch, Minai.
Ellis, Owen William.	Goddard, Archibald Edwin.
Elsey, Edwin.	Godfrey, Harold Graham.
Ellsmoor, Lucy Annie	<i>Goebel, Wilhelm Karl Ottomar.</i>
Evans, Cyril Lloyd.	Goldstraw, Edwin Walter.
Feitelsohn, Leon.	Goode, James.
Ferns, John.	Goodman, Gilbert Neville.
Ferrario, Marie Therese.	Goodman, E. Mabel.
Field, Arthur John.	Goodman, Mary Kirston.
Fikry, Amin.	Goodwin, Muriel Annie.
Finnemore, Mabel.	Gordon, Agnes Isabel.
	Gordon, James William Nugent.
	Gordon, Kenneth Eric.
	Gothard, Clifford Frederic.

- |                             |                                |
|-----------------------------|--------------------------------|
| Gothard, Sydney.            | Henriques, Francisco Firmino.  |
| Graff, Hans.                | Hewins, Wilfred Thomas.        |
| Grafton, Rose Mary.         | Hewitt, Wilfred Joseph.        |
| Grant, Reginald Emile.      | Hickinbottom, Wilfred John.    |
| Green, Alice Amy.           | Higby, Harold Vienna.          |
| Greenan, Clement John.      | Hill, William.                 |
| Greig, Alice Mary Geddes.   | Hillman, Eric Chester.         |
| Grindley, Agnes Scales.     | Hingeley, Ernest Fanthorne.    |
| Gross, Asher Ansell.        | Hoadby, Ruth Malin.            |
| Groves, Ruby Caroline.      | Hoare, Frederick Thomas.       |
| Growcott, Gladys Myra.      | Hockaday, Sydney Reginald.     |
| Guise, Ewart Stanley.       | Holliday, Catherine Elizabeth. |
| Gupta, Benodi Behari.       | Holloway, Dorothy.             |
| <br>                        | Holman, Arthur.                |
| Hahn, Wilhelm Edgar         | Hopkins, Edward Lambert.       |
| Hall, Osmond Hayward.       | Hopkins, Francis Albert        |
| Halstead, Mrs. A.           | Reginald.                      |
| Hamza, Ahmed.               | Hopkins, Graeme.               |
| Hamza, Awad Moustapha.      | Hornby, Arthur John Ward.      |
| Hannah, Emily Clair.        | Horniman, Robert Henry.        |
| Harris, Mary Lorna.         | Horsnail, Eunice.              |
| Harrison, Arthur Cyril.     | Horton, Charles Herbert.       |
| Hartland, Reginald William. | Hothersall, Hubert.            |
| Hartmann, Rudolph.          | Houghton, Catherine Francis    |
| Hartshorne, Norman Holt.    | Brierley.                      |
| Haselden, Robert.           | Houghton, Douglas Lutman.      |
| Hastilow, Cyril Alexander   | Hsi, Te-Mou.                   |
| Frederick.                  | Hsier, Yien.                   |
| Hatfield, Henry Arnold.     | Hsu, Tong Fan.                 |
| Hawkins, Edwin Sidney.      | Hughes, Lydia Mary.            |
| Hayes, John Stanfield.      | Hughes, Mabel Lawson Violet.   |
| Hayward, Arthur Ernest.     | Hughes, Richard Leslie.        |
| Hayward, Harold Victor      | Howell, Charles Joseph.        |
| Hearn, Charles Denis.       | Hulse, William.                |
| Heaton, Herbert.            | Hunt, Elsie Maud Caruthers.    |
| Heaton, Walter Basil.       | Hutchings, William Victor.     |
| Hegan, Horace James.        | Hyde, Charles Walter.          |
| Henderson, Marion Bessie.   | <br>                           |
| Hendriks, Eileen Mary Lind. | Innes, George Alexander.       |

- |                                |                                 |
|--------------------------------|---------------------------------|
| Jaap, Gerhard.                 | Lander, Dorothy Bratton.        |
| Jabavu, Davidson.              | Lascelles, Geoffrey John Henry. |
| Jacombs, Mary Elaine.          | Leck, William John.             |
| Jaegar, Iringard.              | Ledbrook, Hugh Stanley.         |
| James, John Timmis.            | Lee, Pao Ling.                  |
| Jeffcott, Wilfrid George.      | Lee, Richard Frederick.         |
| Jeffery, Gladys Marguerite.    | Lee, Szih-Chung.                |
| Jenkins, Basil Oliver.         | Lee, Wen-Whua.                  |
| Jenkins, Thomas Henry.         | Leheta, Mohamed Fahmy.          |
| Jennens, Arthur Ernest.        | Lewis, Arthur Norris.           |
| Jeyes, Dorothy.                | Lewis, Greville Priestley.      |
| Jeyes, Olive.                  | Lewis, Lydia Cooper.            |
| Job, Leonard Knight.           | Lewis, Wilfrid Edwin.           |
| Johnson, Ethel Beatrice Mary.  | Liang, Percy Ching.             |
| Johnson, Marie Edith Muriel.   | Liang, Shu Chao.                |
| Jones, Eveline.                | Liddell, Thomas.                |
| Jones, Frederick Allan Selous. | Liefrinck, Wilhelmina.          |
| Jones, Jaffray Fryer Selous.   | Lightowler, Hilda.              |
| Jones, Leslie Amiel.           | Little, John Franklin.          |
| Jones, Mary Aline.             | Littleboy, Geoffrey.            |
| Jordan, Leslie Tiel.           | Liu, Hing-yuen Kwei.            |
| Juggins, William Harold.       | Lloyd, Joseph Henry.            |
| Kadisch, Anna.                 | Lloyd, Nora Dean.               |
| Kalker, Louis Emanuel.         | Lodge, Lorna Leslie.            |
| Kang, Shih Ching.              | Lodge, Nora.                    |
| Kay, Florence Emelie.          | Loh, Sze Shung.                 |
| Katz, Abraham Isaak.           | Lones, John Arthur.             |
| Keay, Mary Lilian.             | Long, Bernard Wilfrid.          |
| Keep, Nanette Bidlake.         | Loverdos, Demetrios.            |
| Ketelbey, Doris Mabel.         | Lovesy, Harold Frederick.       |
| King, Cyril Henry Marshall.    | Lowe, Charles William.          |
| Kinloch, Tom Fleming.          | Lucas, Christopher Hollins.     |
| Kirby, Walter.                 | Lowe, Frank.                    |
| Kirkaldy, Evelyn.              | Lowe, Muriel Edith.             |
| Kitcat, Cyril Vernon.          | Ludford, Lawrence.              |
| Kite, John Clarence.           | Lyth, Cyril John.               |
| Knight, Frederick William.     | Mackintosh, Charles Hubert.     |
| Knowles, Frederick.            | Mackenzie, Louis.               |

- Maclean, Margaret Ann  
Matheson.  
Macniven, Duncan.  
Malek, Kamel Marcus Abd-el.  
Mansfield, Eric Oswald.  
Marcussen, Carl Emanuel.  
Marsh, Jessie Victoria.  
Marshall, Hazel.  
Marsland, William Robert.  
Marson, Eric Newton.  
Martin, Gerald Patrick.  
Martin, George.  
Mason, Edward.  
McGeoch, Alexander.  
McIntosh, Emma Russell.  
McIntosh, Nora Russell.  
Meacham, Gladys Mabel.  
Meggett, Frederick Joseph.  
Mendonca, Manuel Santos de.  
Messenger, Walter George.  
Midgley, Charles William.  
Miles, Abraham Arthur.  
Miles, Millicent.  
Millner, William.  
Mills, Francis Lonsdale.  
Mills, Laurence Harry.  
Minett, Violet.  
Mole, Constance Mary.  
Morley, Cecil Charles.  
Morris, Rebecca Emily.  
Morrison, Mary Emily.  
Mortier, Gerrit Wilhelmina.  
Mould, Charles William.  
Mowinckel, Conrad Helge.  
Mulleady, Richard Thomas.  
  
Nadoury, Ahmed Mokhtar.  
Naylor, Norman.  
Neufiess, Doris Louise.  
  
Nevitt, John Basil.  
Newey, Dudley Shaw.  
Newnham, Eric Victor.  
Nicholls, Noel Albert.  
Nicholson, Alexander John.  
Nicholson, Morton Joseph.  
Nimmo, John Alan.  
Norton, Mabel Louise.  
Noyce, Charles Halsted.  
  
Offiler, Harry Cecil.  
Osborne, Hilda Bessie Rosa.  
O'Sullivan, Cornelius.  
Oxenham, Herbert Charles.  
Pain, Marion Frances Hannah.  
Parkes, William Alfred  
Whitehouse.  
Parry, Douglas Howell.  
Part, Nai Boon.  
Partridge, Dora Lilian.  
Partridge, L.  
Patterson, Harry  
Paxton, Helen Blake.  
Paul, Ernest.  
Payne, Richard.  
Pearce, Edward Saxelby.  
Pearce, James George.  
Pearsall, Lucy Ellen  
Pearson, Cecily Mary  
Shakespeare.  
Pearson, Nancy Ward.  
Peaty, Mary Josephine.  
Peel, Henry.  
Pelton, Kenneth Kemble.  
Pelton, Sibyl Ingram.  
Perrins, Frederick Thomas.  
Pettipher, Frank.  
Pickering, Ethel May.  
Poole, Marion.

- Pool, William John.  
Poolton, Ada Lucy.  
Portway, Cedric.  
Povey, Sydney Douglas.  
Powell, Henry Spencer.  
Powicke, Nancy Collyer.
- Rackstraw, Marjorie.  
Rai, Aftah.  
Randall, Oswald Raymond.  
Read, Marion Althea.  
Reader, George Frederick.  
Redwood, Ivor Charles.  
Reeve, Edward Arthur Fry.  
Reeve, Mabel Gladys.  
Reicher, Casimir.  
Richardson, Eric.  
Richardson, Marris Colquhoun.  
Riley, Evelyn Mary.  
Ring, Julius.  
Roberts, James Edmund.  
Robinson, Harriet May.  
Robinson, Howard Martin.  
Robson, Stanley.  
Ropp, Stephen Godfrey.  
Rosas, Agustin.  
Rosas, Pedro Nolasco.  
Rose, Hubert Stephen.  
Rose, William.  
Round, Benjamin James Stacey.  
Rowntree, Margaret.  
Ryland, Caroline Mabel.  
Ryland, Helen
- Sadler, Dorothy.  
Sadler, Ferrebee.  
Sage, John Leigh Percy.  
Salaman, Elsie Esther.  
Salem, Mohamed Abdalla.
- Salmon, Dorothy May.  
Sanabary, Mohamed Ahmed el.  
Samuelson, Nissen.  
Sanabari, Ibrahim.  
Sanderson, Joyce Elizabeth.  
Saunders, Bernard Robertson.  
Saunders, Constance Dorothy.  
Scarborough, Harold Archibald  
Schriener, Heinrich.  
Schulitz, Walter.  
Schüroff, Mrs. Gustav.  
Schüroff, Pansy.  
Scott, Edwin Cooper.  
Scott, Gerald Hugh.  
Seal, Ada Mary.  
Sen Gupta, Kiran Kuinar.  
Shakespear, Mrs. G. A.  
Sharpley, Elsie May  
Shaw, Hilda.  
Shelley, Kenneth Jack.  
Shepherd, Colin Bevan.  
Sherlock, Helen Travers.  
Simon, Sylvia.  
Simpson, Kathleen Winifred.  
Slate, Ruth.  
Smith, Harry Foster.  
Smith, Gilbert Ernest.  
Smith, John Norman Hildick.  
Smith, Reginald Huntley  
Smith, Richard Henry.  
Smithurst, Leonard.  
Southall, Ida Margaret.  
Sowden, Mary Eliza.  
Spencer, Geoffrey Lloyd  
Stamirowski, Janusz L. de.  
Stanton, Doris Elsie Florence  
Starley, James Reginald.  
Steward, Cyril Adams.  
Stileman, Richard.

- Stino, Ramzi.  
 Stokes, Thomas Gabriel.  
 Stringer, Hubert Leslie.  
 Stubbs, Albert.  
 Suckling, Walter Scofield.  
 Summers, John Kenneth.  
 Sweetinburgh, Florence Ellen  
  
 Tallis, William Alfred.  
 Tang, Ying.  
 Tangye, Basil Richard Gelzean.  
 Taylor, Herbert William.  
 Taylor, Hubert.  
 Taylor, Marjorie Hall.  
 Taylor, Violet Ethel.  
 Teare, John Stewart.  
 Tebbutt, Charles William.  
 Teng, Jui Hui.  
 Thomas, Bertha Pemberton.  
 Thompson, Henry Harcourt.  
 Thompson, Herbert John.  
 Thorneycroft, William Ernest.  
 Thornley, Frank.  
 Tidman, Cecil Francis  
 Tillyard, Kathleen Mary.  
 Tinker, Frank.  
 Toeplitz, Jan Joseph.  
 Tomlinson, Mabel Elizabeth.  
 Tosh, Fanny Helen.  
 Tregea, William Herbert.  
 Trimble, Claude Douglas.  
 Turner, Edward Reginald.  
 Turner, Esther Marguerite.  
 Turner, Thomas Henry.  
 Tye, Charles Harold.  
  
 Underwood, Elsie Amy.  
 Urmston, Frank.  
  
 Vidts, Martin de.  
  
 Waite, Frederick.  
 Walker, Charles.  
 Walker, Evelyn Agar.  
 Walker, Jeffery.  
 Wallace, Ernest Hanson.  
 Waller, Ellen Catherine.  
 Waller, Grace Hutchinson.  
 Ward, Luther Singlehurst.  
 Ward, William Evan.  
 Wardle, Arthur James Bunting.  
 Wardle, John Harold.  
 Wathes, Leonard John.  
 Watanabé, Hidéo.  
 Watkins, William Lewis.  
 Watson, Jessie Clark.  
 Watt, Beatrice Mawhumy.  
 Wayne, Phillip Arthur.  
 Wearing, Cyril Murray.  
 Weatherhead, William Rupert  
     Alfred.  
 Webb, Harry William.  
 Webb, John.  
 Westrop, Sydney Albert  
 Westwood, Elsie.  
 West, Alfred Mallet.  
 Wetherall, Ella Mary.  
 Whinfrey, Charles George  
 Whitaker, John Edmund  
     Joseph.  
 Whitehead, Annie Marguerita.  
 Whittall, Frederick Bertram.  
 Whittall, William Gordon  
 Whytehead, Hugh Holtom.  
 Wigley, Wilfrid Cyril Sprye.  
 Wilkes, Lucy.  
 Wilkinson, Miriam.  
 Williams, Bryan Moray.

Williams, Clara Annette.	Wragg, Ethel.
Williamson, Cyril George.	Wright, Ellen Gertrude.
Willis, Honor Margaret.	Wright, William Edmiston.
Willstrop, John William Wesley.	Wright, Winifred.
Wilson, Ernest Parry Bradley.	Wrigley, Edward Ernest.
Wilson, Rachel Eveline.	Wynn, Mrs.
Wilson, Ruth Allason.	Wu, Chen-Tsung.
Witty, Douglas.	Yone, Nai.
Wood, Charles Edmund.	Young, Diego Carlos.
Wood, Dorothy.	Zimmerman, Arthur Ulric.
Wood, Margery Ethel.	Zimmermann, Arthur Harold
Wooldridge, Flora.	Charles Adams.
Workman, Arthur John.	
Worthington, Godfrey Francis	
Paget.	

## STUDENTS IN MEDICINE.

- |                                  |                                   |
|----------------------------------|-----------------------------------|
| Abrahams Reginald George.        | Cooper, William Ashley.           |
| Addenbrooke, Robert Geoffrey.    | Court, Arnold.                    |
| Agar, Willoughby.                | Coventry, James Barbour.          |
| Ainscow, Gladys Ellen.           | Crosskey, John Henry.             |
| Ainscow, James Arthur.           | Cullwick, Herbert Ronald.         |
| Alabaster, Edward Beric.         |                                   |
| Alldridge, Edward Gordon.        | Dancer, Ulysses James Garfield.   |
| Allin, Hubert Raywood.           | Dando, Geoffrey Wright.           |
| Anderson, William Larmour.       | Dawson, Edith.                    |
| Ash, Edwin Baylis.               | Dawes, Harold James.              |
| Ashby, Elizabeth Labrey.         | Dendy, Edward Herbert.            |
|                                  | Donovan, Lillie Mary.             |
| Baird, Andrew Arthur Dering.     | Doubleday, Ernest Francis.        |
| Balmain, Augustus Rollo.         | Dowzer, Bertha.                   |
| Barnes, Basil Edward.            | Duffield, Gerald Hinds.           |
| Barnett, Albert Edward.          |                                   |
| Barnett, John Binford.           | Edginton, Robert Walter Lawrence. |
| Barnley, Lilian Mary.            | Edghill, Agnes Louisa.            |
| Bebb, Roland Harry.              | Evans, Alice Muriel.              |
| Bell, Hilda.                     | Evans, David John.                |
| Bensaude, Magarida Rachel.       |                                   |
| Bloomer, Alan Charles.           | Fairbanks, Beatrix Helen.         |
| Blurton, Gilbert.                | Foley, John Edward.               |
| Bolton, Aletha Josephine.        | Freeman, Claude Emily.            |
| Boneham, Sarah Ann.              | Freeman, Evelyn Ruby.             |
| Bowen, Guy Harcourt.             | Froggatt, Gertrude.               |
| Bowen, Henry Leigh.              | Fry, Marjorie Violet.             |
| Brown, John Clifford.            | Fuoss, Armin Frank Maximilian     |
| Burt, Marion Mildred Barrow.     |                                   |
|                                  | Gadsby, Sidney Oscar.             |
| Cameron, Mary.                   | Gill, Koch Harry.                 |
| Carlton, Lawrence Bernard.       | Goodison, Frank Bowler.           |
| Chinn, Alice Margaret.           | Graham, Reginald Portman.         |
| Clements, William Arnold.        | Gregg, Arthur Donald.             |
| Coghill, Elfrieda Hester Brooke. | Green, Arthur Augustus Russell.   |
| Cooksey, Gladys Mary.            |                                   |

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|-------------------------------------|--------------------------------|
| Hall, Herbert William               | Levason, Desmond George        |
| Hancock, Bernard Oswald.            | Grenville.                     |
| Hardman, William.                   | Lewis, Charles Gordon.         |
| Hartley, George Cleverdon.          | Lloyd, John Jordan.            |
| Hartley, Wilfrid Shaw.              | Lloyd-Davies, Allan Wyndham.   |
| Harvey, Frederick John.             | Lones, Hilda Mary.             |
| Headley, Alice Dora.                |                                |
| Heaton, Ethel May.                  | MacCallum, Margaret Nathaniel. |
| Hemingway, Mary Isabel              | Magrane, John Plunkett.        |
| Haynes, Lilian.                     | Martin, Lilian Winifred.       |
| Hill, George Baillie.               | Mathie, George Cecil.          |
| Hill, Harold Awbrey.                | McMichael, Gerald Joseph Wyld. |
| Hill, Harold Belfit.                | Mence, Harold George Victor.   |
| Hill, Isabel.                       | Millar, Rebekah Maud.          |
| Hirst, William James.               | Miller, Alan Lawrence.         |
| Hodgetts, William George.           | Millington, Arthur David.      |
| Holden, Eric George Theodore.       | Mitchell, Archibald Browning.  |
| Hooper, Olive Octavia.              | Moir, Leonard James.           |
| Hudson, William Edward.             | Mullins, George Edward.        |
| Hughes, Enos Norman.                | Murphy, George.                |
| Hughes, Oscar Cecil Lawrence.       | Murray, Kenneth A.             |
| Johnson, William Trevor.            | Nelson, William Percival.      |
| Jones, Eric Shirley.                | Newey, Frank.                  |
| Jones, Hilda Mary.                  | Newman, Charles Frederick.     |
| Keep, Kathleen Mary.                | Newton, William Watson.        |
| Kerby, Theo Rosser Fred.            | Nichols, Thomas Leslie.        |
| King, Mabel Waca Rund.              | North, Alfred William.         |
| Kirby, Mary Ida.                    | Oswald, Daphne.                |
| Lakin, Charles William.             | Page, Dorothy.                 |
| Lamb, Francis William Mason.        | Parkes, Oscar.                 |
| Langdale-Smith, Henry<br>Gauntlett. | Parsons, Ernest Alsager.       |
| Leather, James Bertram.             | Peine, Alfred.                 |
| Lees, Alec Antony.                  | Peirce, Edward Rowley.         |
| Lees, Francis Charles.              | Phillips, Withiel Leslie.      |
| Leicester, Ethel Annie.             | Pinson, Kenneth Bernard.       |
|                                     | Pinson, Raymond Fearle         |

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|-----------------------------------|-------------------------------------|
| Pitt, Mary.                       | Spurway, Eustace Edgar Roberts.     |
| Powell, Harry Stanyer.            | Stack, John Mansfen.                |
| Price, Ralph Brian.               | Staley, Robert James.               |
| Prosser, Mabel Eliza.             | Standing, David Fox.                |
| Raison, Cyril Alban.              | Stanton, Doris Elsie Florence.      |
| Ramzy, Hussein.                   | Starley, Bertram Allan.             |
| Rees, Gwendolen Mary.             | Steward, Sydney Tibbets.            |
| Rennie, Dennis Charles.           | Stokes, Thomas Gabriel.             |
| Rhodes, Sidney Herbert.           | Stubbs, Clement Massey.             |
| Rice-Oxley, Leonard George Cecil. | Sudki, Awad.                        |
| Richards, Beresford Tom.          | Swann, Herbert Spencer.             |
| Richards, Frederick Harold.       | Taylor, John Lupton.                |
| Richmond, Henry.                  | Teall, Cecil George.                |
| Roberts, Leslie Douglas.          | Teall, Granville Harry.             |
| Robertson, Agnes Annie Sloan.     | Thomson, Arthur Peregrine.          |
| Robinson, Frederick William.      | Thorman, Frederick Edward Alan.     |
| Rose, Baron Theodore.             | Thornton, Leonard Neville.          |
| Rose, Erica Susan Carrick.        | Thornton, Pensam                    |
| Roth, Helen.                      | Tighe, John Henry.                  |
| Rudd, Charles.                    | Townshend, Desmond Villiers.        |
| Salama, Farag.                    | Trimble, Robert Maxwell.            |
| Scott, David.                     | Turton, Alfred Howard.              |
| Scott, James Jules Avit.          | Truman, Frederick Charles.          |
| Sheasby, Herbert.                 | Turner, Gladys Maude.               |
| Shufflebotham, Hilda Nora.        | Underhill, Eric.                    |
| Shiveohwarkar, Ramchandra Vishun. | Wagner, Ethelbert Godwin Stockwell. |
| Sims, Carrie.                     | Walker, Hilda.                      |
| Simson, Marion Tudhope.           | Wall, Bernard Ernest.               |
| Slim, Charles John.               | Wardle, Marion.                     |
| Smith, Alfred Percy.              | Welks, Nora Grey.                   |
| Smith, Arthur Cloudesley.         | West, Ernest Arthur.                |
| Smith, Herbert.                   | Weston, John Theodore Spencer.      |
| Smith, Leonard.                   | Whitcombe, Harold Arthur.           |
| Smith, Peter de Safforie.         | Wilkinson, Geoffrey Legh.           |
| Smith, William Maule.             |                                     |

Williams, Leslie.	Wood-White, Bernard.
Williams, Margaret Aileen.	Worsley, Allan <sup>a</sup> Nathaniel.
Williams-Walker, Alfred.	Wright, Diana Chubb.
Willis, Honor Margaret.	Wykes, Malcolm.
Winter, Geoffrey.	
Winfield, Frederick Batwell.	Yeoman, John Clark.
Wood, Alexander Littleton.	Youngson, Alexander.

## STUDENTS IN THE TRAINING COLLEGE.

- |                                       |                                 |
|---------------------------------------|---------------------------------|
| Adams, Dorothy Lilian.                | Cowley, Dorothy Fanny Hall.     |
| Adams, Edith May.                     | Crump, Gwendoline.              |
| Adcock, Blanche Matilda.              | Cumming, Gertrude.              |
| Andrews, Rosalie Mary.                |                                 |
| Ashby, Mabel Kathleen.                | Davies, Dora Hettie.            |
| Ault, Mary Kathleen.                  | Davies, Jessie Marion.          |
| Austin, Edith Marion.                 | Daynes, Harold Ashley.          |
|                                       | Dellow, Janet Mary.             |
| Baggs, Dorothy Gladys.                | Dexter, George Frederick.       |
| Bailey, Hilda Muriel.                 | Dolphin, Frederick George.      |
| Barker, Marjorie Eveleen.             | Druller, Isabel Daisy.          |
| Bastable, Ralph Douglas.              | Druller, Vivian Vaughan.        |
| Bastable, Madeline.                   |                                 |
| Bayley, Mary.                         | Eagleton, Laura Constance Mary. |
| Beardmore, Ernest William.            | Eggleton, Leslie Frederick.     |
| Bellison, Mark.                       | Eite, Walter.                   |
| Bertram, Edith.                       | Eldridge, John Thomas.          |
| Bevon, Amy Gertrude.                  | Evans, Gladys Edith.            |
| Bick, Freda Ann.                      | Evans, Gwen.                    |
| Billingsley, Florence Kate<br>Amelia. | Farrow, Edith May.              |
| Bishop, Edgar William.                | Fisher, Hilda Grace.            |
| Boone, Gladys.                        | Flavell, Marion.                |
| Booth, Frances Mary.                  | Follows, Annie Hilda.           |
| Botterill, Eva Mary.                  | Franklin, Evaleen.              |
| Brettell, William Percy.              | French, Edith Helen.            |
| Byles, Agnes Elizabeth<br>Josephine.  |                                 |
| Calway, Mary.                         | Garner, Frederick Horace.       |
| Carpenter, Mabel Gertrude.            | Gilberthorpe, Violet Hilda.     |
| Caudle, Albert Grainger.              | Ginn, Ethel Mary.               |
| Chance, Louie.                        | Gonley, Mary Anne.              |
| Clarence, Olive Jane.                 | Gosling, Kathleen Edith.        |
| Clews, Hollis Hudson.                 | Greaves, Harry.                 |
| Cook, Annie.                          | Greaves, Helen Marjorie.        |
| Commander, Gladys Norman.             | Greenwood, Gladys.              |
|                                       | Grove, George.                  |
|                                       | Guest, Aubrey Ward.             |

- Haddleton, Gladys Jessie.  
Haddock, Arthur.  
Hale, Edith Mary.  
Hancock, Dorothy.  
Hands, Dora Gertrude.  
Harcourt, Wilfred.  
Harper, Edith Mary.  
Harries, Gwladys Mary.  
Harris, Lucy.  
Harris, Percy Joseph.  
Harrison, Clarence.  
Harriss, Irene Vernon.  
Haselden, Annie.  
Hewitt, Francis Edward.  
Hinchley, Jessie Emily.  
Hipkins, Charles Hammond.  
Hipkins, Gladys.  
Hipkiss, Martha.  
Hodges, Margaret Eleanor.  
Hodgson, Mabel Gladys.  
Hogg, Eleanor Doris.  
Holloway, Dorothy May.  
Holloway, Jessie Elizabeth.  
Howson, Charles William Harold.  
Hutchin, Doris.  
Hutchinson, Violet Mary.  
Hutchison, Frances Mary.  
  
Ibbs, Daisy Louisa.  
  
Jackson, William Hickin.  
Jevon, Marjorie.  
Johnson, Doris Maud.  
Johnson, Hilda.  
Jones, Gertrude Sarah Ann.  
Jones, Samuel John.  
  
Kerr, Margaret Alice.  
Kershaw, Eveline.  
  
Keyte, Beatrice Margaret.  
Kimball, Daisy Mabel.  
Knight, Clarrie May.  
  
Larcombe, Ada.  
Lardge, Florence Mabel.  
Layton, Dorothy Ruth.  
Lerrigo, John Henry.  
Lewis, Dorothy Annie.  
Lines, Leslie.  
Long, Lilian Iris.  
Lovestone, Miriam Zepporah.  
Lucas, Elsie May.  
  
Malin, Frederick George.  
Marrian, Jessie Winifred.  
Marsh, Nora Alice.  
Marsters, Eva Lewis.  
Martin, Elsie Rhoda.  
Martin, Florence.  
Mason, Evelyn Arthur.  
Matthewson, Laura Gertrude.  
Maxwell, Florence Evelyn.  
McLaren, Dora.  
Merchant, Mabel  
Mills, Agnes.  
Muntz, Hilda Doris.  
Moakes, Lilian.  
Molton, Edith Ann.  
Moreton, Frank Edward.  
Mosley, George.  
Mottram, Frances Margaret.  
Mundey, Pattie.  
  
Neale, Doris Ellen.  
Newby, Annie Dora.  
Newman, Eleanor Grace.  
Newman, Winifred Lilian  
Newill, Elsie Vaughan

- |                               |                                      |
|-------------------------------|--------------------------------------|
| Nichol, Dorothy.              | Sears, Harold George.                |
| Nicholls, Esmond Hubert       | Silk, Nellie.                        |
| Lawson.                       | Sims, Nellie.                        |
| Osborne, Philip John.         | Simmons, Mabel.                      |
| Overend, Margaret Winifred.   | Smedley, Joseph Hanson.              |
| Overton, Doris Muriel Hands.  | Smith, Augusta Mary.                 |
| Palmer, Mabel Elizabeth.      | Smith, Clarissa Lais.                |
| Parkes, Leonard James.        | Smith, Doris Eliza.                  |
| Payne, Alice.                 | Smith, Grace Kathleen.               |
| Pearsall, Olive Julia.        | Smith, Nina.                         |
| Pearson, Edgar McCully.       | Southerton, Lawrence Cyril.          |
| Pegg, Elsie Jane.             | Speller, Naomi.                      |
| Pennell, Lillian Mary.        | Standing, Alice.                     |
| Perret, Catherine Mary.       | Stanley, William.                    |
| Perrett, Arthur Joseph.       | Stevens, Constance Miriam.           |
| Perry, Charles William.       | Stewart, Peter.                      |
| Pither, Florence Mary.        | Storer, James Arthur.                |
| Platt, Muriel Grace.          | Summers, Violet Mary.                |
| Powell, Elsie Gladys.         | Summerton, Harold.                   |
| Poxon, Lydia.                 | Taunton, Margarita Frances<br>Sarah. |
| Pritchard, Margaret Winifred. | Taylor, Dorothy Mary.                |
| Prosser, Catherine Lavinia.   | Taylor, Gladys Maud.                 |
| Pryor, Gwendoline Marjorie.   | Tidmarsh, Marjorie Ella Martha.      |
| Rainsford, Gladys Ada.        | Tongue, John William Collis.         |
| Ray, Myrtle Matilda.          | Turner, John Ewart Shipley.          |
| Rees, Gladys.                 | Ward, Elsie Adelaide Gertrude.       |
| Rew, Edith Emily.             | Wastell, Marjorie.                   |
| Richards, Christopher Alfred. | Wheeler, Mary.                       |
| Roberts, Dorothy Elizabeth.   | Whitehead, John Henry Cecil          |
| Robins, Valeria Latitia.      | Whitehouse, Bertha                   |
| Robinson, Clifford Llewellyn. | Wightman, Evelyn Miriam.             |
| Robinson, Elsie May.          | Willdig, William Henry.              |
| Roe, Frederick Charles.       | Wilkinson, William Evans.            |
| Rudd, Frances May.            | Williams, Hilda Olivia Pauline.      |
| Sarjeant, Douglas Leslie.     | Williams, Mary.                      |
|                               | Wilsdon, Edith Amy.                  |

Windmill, Brenda Sybil.	Wright, Elsie May.
Withey, Ellen Jane.	Wrigley, Dorothy.
Woodall, Henry.	
Wood, Alva.	Yates, Bessie,
Wood, Ethel May.	Yates, Esther.
Woolley, Louie.	Young, Dorothy.
Wright, Ada Elizabeth.	Young, Selina Ellen.

## UNIVERSITY EXAMINATIONS.

SESSION 1913-4.

## FACULTY OF SCIENCE.

JUNE, 1914.

## I.—Degree of Doctor of Science.

(a) *Official.*

Keene, Horace Borton.

(b) *Under Ordinary Regulations.*

Aston, Frederick William.

## II.—Degree of Master of Science.

(a) *Official.*Chadwick, Percival Miller.  
Panton, Robert Claude.(b) *Under Ordinary Regulations.*

Bastable, Ralph Douglas.  
 Bayliss, Ralph Garratt.  
 Beardsmore, Tom Archibald.  
 Brain, Charles Kimberlin.  
 Broscomb, Frederick James.  
 Crowther, Oswald Hubert.  
 Hawkins, Edwin Sidney.  
 Heathcote, Henry Leonard.  
 Hopkins, Graeme.  
 Povey, Sydney Douglas.  
 Webb, Harry William.  
 Wilkins, Frank Trevor.

## III.—Degree of Bachelor of Science.

## HONOURS DIVISION.

Ahmad, Abd-El-Hameed (Chemistry—1st Class).  
 Bagnall, Howard Henry (Chemistry—1st Class).  
 Eite, Walter (Geology).  
 Garner, Frederic Horace (Chemistry—1st Class).  
 Groves, Ruby Caroline (Botany).

Knight, Frederick William (Chemistry—3rd Class).  
 Lowe, Charles William (Zoology and Botany).  
 Thorncroft, William Ernest (Metallurgy).

## DIVISION I.

Cheng, Pinzen.  
 Hornby, Arthur John Ward.  
 Jones, Leslie Amiel.  
 Wood, Charles Edmund.

## DIVISION II.

Andrews, William Archibald.  
 Goddard, Archibald Edwin  
 Jennens, Arthur Ernest.  
 Jeyes, Dorothy.  
 Mills, Laurence Harry.  
 Mowinkel, Conrad Helge  
 Taylor, Hubert.  
 Underwood, Elsie Amy.  
 Wearing, Cyril Murray.

*Completed the Examination*

Ray, James Ernest.

*Passed in Part of the Examination.*

Allpress, Charles Frederick (Pure Mathematics II, Applied Mathematics I, *Principal*).  
 Bambury, Horace Middleton (Physics, Pure Mathematics II, Applied Mathematics I, *Subsidiary*).  
 Barber, Winifred Henty (Applied Mathematics II, *Principal*; Physics II, *Subsidiary*).  
 Beardmore, Ernest William (Physics, *Principal*; Pure Mathematics II, Applied Mathematics I, *Subsidiary*).  
 Beards, John Broadhouse Herbert (Pure Mathematics II, *Subsidiary*).  
 Biddulph, Richard (Applied Mathematics II, *Principal*; Geology, *Subsidiary*).  
 Birkbeck, Joseph Wesley Lightbourne (Pure Mathematics II, Applied Mathematics I, *Subsidiary*).  
 Bristol, Blanche Muriel (Pure Mathematics II, *Subsidiary*).  
 Callow, Ernest Harold (Pure Mathematics II, *Subsidiary*).  
 Collins, Bert (Physics II, *Subsidiary*).  
 Das, Mathur Mohan (Geology, *Principal*).  
 Daynes, Harold Ashley (Physics, Pure Mathematics II, Applied Mathematics I, *Principal*).  
 Doherty, Frank James (Pure Mathematics II, Applied Mathematics I, *Subsidiary*).  
 Edghill, Joan (Zoology, *Subsidiary*).

- Edwards, John (Pure Mathematics II, Applied Mathematics I, *Subsidiary*).  
Eggleton, Leslie Frederick (Education I, *Subsidiary*).  
Ellsmoor, Lucy Annie (Pure Mathematics II, Applied Mathematics I, *Principal*).  
Gawdat, Sayed (Chemistry, Pure Mathematics III, Applied Mathematics II, *Principal*).  
Harris, Percy Joseph (Pure Mathematics II, *Subsidiary*).  
Hartshorne, Norman Holt (Metallurgy, *Subsidiary*).  
Howson, Charles William Harold (Pure Mathematics II, Applied Mathematics I, *Subsidiary*).  
Ibbs, Daisy Louisa (Physics, *Principal*; Pure Mathematics II, Applied Mathematics I, Geology, *Subsidiary*).  
Johnson, Marie Edith Muriel (Zoology, *Subsidiary*).  
Long, Bernard Wilfrid (Physics, Pure Mathematics II, Applied Mathematics I, *Principal*).  
Martin, George (Chemistry, *Principal*; Pure Mathematics III, *Subsidiary*).  
Nicholls, Noel Albert (Physics, *Subsidiary*).  
Parkes, William Alfred Whitehouse (Physics, Pure Mathematics II, Applied Mathematics I, *Subsidiary*).  
Pickering, Ethel May (Pure Mathematics II, Applied Mathematics I, *Subsidiary*).  
Powell, Henry Spencer (Physics, Pure Mathematics II, Applied Mathematics I, *Subsidiary*).  
Richards, Christopher Alfred (Geology, *Principal*).  
Robinson, Clifford Llewellyn (Pure Mathematics II, Applied Mathematics I, *Subsidiary*).  
Robinson, Howard Martin (Geology, *Subsidiary*).  
Smith, Gilbert Ernest (Chemistry, *Principal*; Physics, *Subsidiary*).  
Storer, James Arthur (Geology, *Principal*; Pure Mathematics II, Applied Mathematics I, *Subsidiary*).  
Summers, John Kenneth (Pure Mathematics II, Applied Mathematics I, *Subsidiary*).  
Summerton, Harold (Geology, *Subsidiary*).  
Tidman, Cecil Francis (Geology, *Subsidiary*).  
Walker, Charles (Pure Mathematics II, Applied Mathematics I, *Subsidiary*).  
Ward, William Evan (Physics, Pure Mathematics II, Applied Mathematics I, *Principal*).  
Whinfrey, Charles George (Physics, *Subsidiary*).  
Williamson, Cyril George (Physics, Pure Mathematics II, Applied Mathematics I, *Subsidiary*).  
Willstrop, John William Wesley (Physics, *Principal*; Pure Mathematics II, Applied Mathematics I, *Subsidiary*).  
Workman, Arthur John (Physics, *Principal*; Pure Mathematics II, Applied Mathematics I, *Subsidiary*).

Two Year Students eligible for Degree after a further year's attendance at the University.

HONOURS DIVISION.

Perry, Charles William (Geology).

DIVISION I.

Elsey, Edwin.

Hastilow, Cyril Alexander Frederick.

Hopkins, Francis Albert Reginald.

Messenger, Walter George.

DIVISION II.

Carter, Nellie.

**IV.—Bachelor of Science in Engineering.**

HONOURS DIVISION.

Lyth, Cyril John (Civil Engineering).

DIVISION I.

Pearce, James George.

Pool, William John.

Tregea, William Herbert.

Watkins, William Lewis.

DIVISION II.

Barwell, Hugh William Eames.

Bladwell, Leonard Joseph.

Brown, Frederick John.

Clay, Arthur Frederick.

Clifford, George Herbert Workman.

Elkington, Arthur Edward Hardwicke.

Hillman, Eric Chester.

Round, Benjamin James Stacey.

Stubbs, Albert.

*Completed the Examination.*

Hipkins, Edward Cecil Daniel.

*Passed in Part of the Examination.*

King, Cyril Henry Marshall (Mechanical, Civil, and Electrical Engineering).

Rosas, Pedro Nolasco (Civil Engineering, Geology).

Steward, Cyril Adams (Civil Engineering, Geology, Accounting).

**Two Year Student eligible for Degree after a further year's attendance at the University.**

DIVISION II.

Ahmed, Abd el Aziz.

**V.—Degree of Bachelor of Science in Metallurgy.**

DIVISION I.

Field, Arthur John.

DIVISION II.

Ellis, Owen William.

*Passed in Part of the Examination.*

Starley, James Reginald (Metallurgy, Mining, Accounting)

**VI.—Degree of Bachelor of Science in Mining.**

HONOURS DIVISION.

Hulse, William.

DIVISION I.

Ropp, Stephen Godfrey Joseph.

DIVISION II.

Smith, Reginald Huntley.

*Completed the Examination.*

Newey, Dudley Shaw.

*Passed in Part of the Examination.*

Lee, Pao Ling (Mining, Engineering VIII, Heat Laboratory).

Scott, Edwin Cooper (Mining, Heat Laboratory, Geology).

**VII.—Intermediate Science.**

(a) *Internal Candidates.*

DIVISION I.

Aldridge, Frederick George.

Wilson, Ernest Perry Bradley.

DIVISION II.

Collins, Bert.

Hickinbottom, Wilfred John.

Wright, Winifred.

*Completed the Examination.*

Das, Mathur Mohan.  
 Davies, William Morley  
 Gill, Koch Harry.  
 Mowinckel, Conrad Helge.

(b) *External Candidates*

## DIVISION I.

James, Frank, Birmingham Central Secondary School.  
 Walden, William, Solihull Grammar School.

## DIVISION II.

Crow, Thomas Benedict, King Edward's School, Birmingham.  
 Lander, John, Burton Grammar School.  
 Lowe, Ernest, West Bromwich Secondary School.  
 Marshall, Philip Spencer, King Edward's School, Birmingham.  
 Toy, Eric John, King Edward's School, Birmingham.  
 Trobridge, Geoffrey William, King Edward's School, Camp Hill.

## IX.—Third Engineering Examination.

## DIVISION I.

Adam, Peter.  
 Collins, Horatio John.  
 Westropp, Sidney Albert.

## DIVISION II.

Burman, Humphrey Woollaston.  
 Gross, Asher Ansell.  
 Mulleady, Richard Thomas.  
 Parry, Douglas Howell.

*Passed in Part of the Examination.*

Cartwright, Richard Percival (Mechanical, Civil, Electrical Engineering).  
 Gothard, Clifford Frederic (Mathematics, Mechanical and Civil Engineering).  
 Horniman, Robert Henry (Mechanical, Civil, Electrical Engineering).  
 Miles, Abraham Arthur (Mathematics, Mechanical and Civil Engineering).  
 Millner, William (Mechanical, Civil, Electrical Engineering).

**X.—Second Engineering Examination.****DIVISION I.**

Adcock, Fred.  
 Bevon, William Victor.  
 Boissier, John Scobell.  
 Coupland, Ernest.  
 Hewitt, Wilfred Joseph.

**DIVISION II.**

Gothard, Sydney.

*Completed the Examination.*

Brown, Frederick John.  
 Mulleady, Richard Thomas.  
 Westropp, Sidney Albert.

*Passed in Part of the Examination.*

Dakin, Charles Frederick (Engineering IA and II, Applied Mathematics, Metallurgy).  
 Dervichian, Krikor Garabed (Engineering IA ,II, and VII, Applied Mathematics, Geology).  
 Foy, Thomas Arthur Wyness (Engineering IA and VII, Geology).  
 Grant, Reginald Emile Duhant (Engineering IA and VII, Geology).  
 Hewins, Wilfred Thomas (Engineering IA, Metallurgy).  
 Hyde, Charles Walter (Engineering IA and II, Applied Mathematics, Metallurgy).  
 Martin, Gerald Patrick (Engineering IA and VII, Applied Mathematics, Geology).  
 Reader, George Frederick (Engineering IA and VII, Pure Mathematics, Geology).  
 Ring, Julius (Engineering IA, Metallurgy).  
 Salem, Mohamed Abdalla (Engineering IA, Applied Mathematics).  
 Wardle, John Harold (Engineering IA, Metallurgy).

**VIII.—First Engineering Examination.**(a) *Internal.***DIVISION I.**

Yone, Nai.

**DIVISION II.**

Hughes, Richard Leslie.

*Completed the Examination.*

Boissier, John Scobell.  
Reader, George Frederick.

*Passed in Part of the Examination.*

Alurralde, Jose Maria (Engineering, Applied Mathematics I.)  
Collins, Charles Edwin (Engineering, Physics, Chemistry, Applied Mathematics).  
Givotovsky, Victor Timofeewitch (Engineering, Chemistry, Mathematics).  
Stringer, Hubert Leslie (Engineering, Physics, Chemistry).  
West, Alfred Mallet (Engineering).

(b) *External.*

DIVISION I.

Arthur, John George, Bablake Secondary School, Coventry

*Completed the Examination.*

Lane, Sydney Henry, Smethwick Technical School.

## XI.—Second Metallurgy Examination.

DIVISION I.

Evans, Cyril Lloyd.  
Nevitt, John Basil.

DIVISION II.

Sadler, Ferrebee.

*Completed the Examination.*

Starley, James Reginald.

*Passed in Part of the Examination.*

Allkins, Archibald Thomas (Metallurgy, Engineering) IA,  
Applied Mathematincs, Drawing).  
Patterson, Harry (Mining IIA, Geology, Surveying).

## XII.—Second Mining Examination.

(a) *Degree Candidates.*

DIVISION I.

Cochrane, Thomas George Frederick.

DIVISION II.

Cadman, Charles Joseph.  
Mendonca, Manuel Santos de.

*Completed the Examination.*

Chou, Hsi.  
Scott, Edwin Cooper,

*Passed in Part of the Examination.*

Atherton, Charles William (Mining II and IIB, Surveying II Geology, Engineering I.)  
Heaton, Walter Basil (Mining, Drawing, Geology Engineering IA, Metallurgy).  
Jones, Frederick Allan Selous (Mining II and IIB, Surveying II, Geology).  
Kang, Shih Ching (Engineering I).  
Redwood, Ivor Charles (Mining II and IIB, Surveying II, Engineering I).  
Sengupta, Kirin Kumar (Mining II and IIA, Drawing, Geology, Engineering IA, Metallurgy).

### XIII.—First Metallurgy Examination.

#### DIVISION II.

Dickin, James Herbert.  
Turner, Thomas Henry.

*Passed in Part of the Examination.*

Henriques, Francisco Firmino (Metallurgy, Surveying, Physics).  
Hopkins, Edward Lambert (Metallurgy, Surveying, Physics, Chemistry).  
Macniven, Duncan (Metallurgy, Surveying, Chemistry).  
Ward, Luther Singlehurst (Metallurgy).

### XIV.—First Mining Examination.

#### DIVISION I.

Jordan, Leslie Tiel.  
Kirby, Walter.

#### DIVISION II.

Scott, Gerald Hugh.

*Completed the Examination.*

Alurralde, Juan Carlos.  
Cochrane, Thomas George Frederick  
Heaton, Walter Basil.  
Jones, Frederick Allan Selous.  
Ropp, Stephen Godfrey Joseph.

*Passed in Part of the Examination.*

- Rosas, Augustin (Physics, Chemistry).  
 Stileman, Richard (Mathematics, Chemistry, Mining, Surveying).  
 Weatherhead, William Rupert Alfred (Chemistry, Mining, Surveying).

#### XV.—Diploma in Malting and Brewing.

- Robson, Stanley.  
 Wright, William Edmiston.

#### XVI.—Certificate in Malting and Brewing.

*First Class.*

- Blans, Nicolans Theodories.
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### SUPPLEMENTARY EXAMINATIONS.

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SEPTEMBER, 1913.

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#### I.—Degree of Bachelor of Science.

*Completed the Examination.*

- Tongue, John William Collis.

*Passed in Part of the Examination.*

- Cheng, Pinzen (Geology I, *Subsidiary*).  
 Goddard, Archibald Edwin (Pure Mathematics II, *Subsidiary*).  
 Hopkins, Francis Albert Reginald (Applied Mathematics I, *Subsidiary*).  
 Howell, Charles Joseph (Physics II, *Subsidiary*).  
 Jennens, Arthur Ernest (Applied Mathematics II, *Principal*).  
 Jones, Leslie Amiel (Pure Mathematics II, *Subsidiary*).  
 Hubert, Taylor (Physics II, *Subsidiary*).

#### II.—Degree of Bachelor of Science in Engineering.

*Completed the Examination.*

- Baylis, Arthur Noel.

*Passed in Part of the Examination.*

- Hipkins, Edward Cecil Daniel (Strength of Materials).

**III.—Degree of Bachelor of Science in Metallurgy.***Completed the Examination.*

Nair, Thekatt Kumaran.

**IV.—Degree of Bachelor of Science in Mining.***Division I.*

Moss, Kenneth Neville.

*Completed the Examination.*

Ford, Gabriel Robert Harvey.

**V.—Intermediate Science.****(a) INTERNAL CANDIDATES.***Completed the Examination.*

Cashmore, Albert Eric.

Fisher, Gladys May.

Prosser, Mabel Eliza.

Ray, James Ernest.

Robinson, Howard Martin.

Sharpley, Elsie May.

Shufflebotham, Hilda Nora.

Smith, Alfred Percy.

Starley, Bertram Allan.

Ward, Luther Singlehurst.

**(b) EXTERNAL CANDIDATES.***Division II.*

Ibbs, Daisy Louisa (Queen Mary's School, Walsall).

*Completed the Examination.*

Eggleton, Leslie Frederick (Waverley Road Secondary School, Birmingham).

Hartshorne, Norman Holt (King Edward's School, Birmingham).

Johnson, Marie Edith Muriel (West Bromwich Municipal Secondary School).

Jones, Eveline (Wolverhampton Technical School).

Millington, William (West Bromwich Municipal Secondary School).

Nicholson, Alexander John (Waverley Road Secondary School, Birmingham).

*Passed in Part of the Examination.*

Reader, George Frederick (Nuneaton Grammar School) (Mathematics, Physics).

**VI.—Third Engineering Examination.***Completed the Examination.*

Clifford, George Herbert Workman.  
 Rosas, Pedro Nolasco.  
 Round, Benjamin James Stacy.

**VII.—Second Engineering Examination.***Completed the Examination.*

Cartwright, Richard Percival.  
 Gothard, Clifford Frederic.  
 Hillman, Eric Chester.  
 Horniman, Robert Henry.  
 King, Cyril Henry Marshall.  
 Millner, William.  
 Parry, Douglas Howell.

*Passed in Part of the Examination.*

Barwise, Henry Balfour (Applied Mathematics I).  
 Hayward, Arthur Ernest (Metallurgy).  
 Lones, John Arthur (Engineering IA, II, and VII,  
     Applied Mathematics I, Geology I, Drawing).  
 Mulready, Richard Thomas (Applied Mathematics I,  
     Geology I).  
 Westrop, Sidney Albert (Physics II).

**VIII.—First Engineering Examination.****INTERNAL CANDIDATES.***Division II.*

Hewins, Wilfred Thomas.

*Completed the Examination.*

Adcock, Fred.  
 Salein, Mohamed Abdalla.  
 Sorrill, Herbert.

*Passed in Part of the Examination.*

Richardson, Marris Colquhoun (Engineering).

**IX.—Second Mining Examination.***Completed the Examination.*

Ford, Gabriel Robert Harvey  
 Lee, Pao Ling.  
 Uzielli, Valentine Leslie Douglas.  
 Smith, Reginald Huntley.

*Passed in Part of the Examination.*

Teng, Jui Hui (Mining II, Surveying II, Metallurgy)

### X.—First Metallurgy Examination.

*Completed the Examination.*

Allkins, Archibald Thomas.  
Sadler, Ferrebee.

### XI.—First Mining Examination.

*Completed the Examination.*

Kang, Shih-Ching.  
Liang, Shu-Chao.  
Mendonca, Manuel Santos de.  
Newey, Dudley Shaw.

*Passed in Part of the Examination.*

Teng, Jui Hui (Physics).

## FACULTY OF ARTS.

JUNE, 1914.

### I.—Degree of Master of Arts.

(a) *Official.*

Intze, Ottakar.

(b) *Under Ordinary Regulations.*

Airston, Wilhelmina (*Honours School of Modern Languages*).  
Allen, Frederick.  
Alsop, Horace.  
Barnes, May.  
Cash, Edith Fanny (*Honour School of Modern Languages*).  
Cottrell, Thomas Ernest.  
Fisher, Edmund.  
Goodman, Gilbert Neville (*Honour School of English*).  
Harris, Mary Lorna.  
Rose, William (*Honour School of Modern Languages*).  
Smith, William Edward.  
Stevenson, John Charles.  
Taylor, Herbert William.  
Wilson, Arthur Ernest.  
McIntosh, Nora Russell (*Honour School of English*).  
Peaty, Mary Josephine (*Honour School of English*).

## II.—Degree of Bachelor of Arts.

Gibson, Mary Tregellas (*Honour School of Modern Languages*).  
 Guise, Ewart Stanley (*Honour School of English*).

## DIVISION I.

Ashby, Mabel Kathleen (Distinction in Philosophy).  
 Harriss, Irene Vernon (Distinction in Education).  
 Haselden, Annie (Distinction in Latin).  
 Holloway, Jessie Elizabeth (Distinction in German).  
 Jones, Gertrude Sarah Ann (Distinction in Latin).  
 Pither, Florence Mary (Distinction in English and History).  
 Turner, John Ewart Shipley (Distinction in English).  
 Whitehead, Annie Marguerita (Distinction in Latin and History).

## DIVISION II.

Amiss, Winifred Helen.  
 \*Barnes, May.  
 Bellison, Mark.  
 Clews, Hollis Hudson.  
 Cumming, Gertrude.  
 Druller, Vivian Vaughan.  
 Evans, Gwen.  
 Frew, Margaret Annie.  
 Ginn, Ethel Mary.  
 Goodwin, Muriel Annie,  
 Harrison, Arthur Cyril.  
 Haselden, Robert.  
 Hinchley, Jessie Emily.  
 Holloway, Dorothy.  
 Kay, Florence Emelie.  
 Lardge, Florence Mabel.  
 Marsh, Nora Alice.  
 Marshall, Hazel.  
 Pearsall, Lucy Ellen.  
 Pearson, Edgar McCully.  
 Sadler, Dorothy  
 Smith, Augusta Mary.  
 \*Smith, William Edward.  
 Southerton, Laurence Cyril.  
 Waller, Grace Hutchinson.  
 Wilkinson, William Evans.

*Completed the Examination.*

Curtin, Anne.  
 Cade, Frank.  
 Fullwood, Florence Kathleen.  
 Griffin, John Ridgeway.  
 Hipkins, Charles Hammond.  
 Holliday, Catherine Elizabeth.  
 Mason, Edward.  
 Prosser, Catherine Lavinia.  
 Read, Marion Althea.  
 Rosborough, Stanley Melville.  
 Taylor, Gladys Maud.  
 Tosh, Fannie Helen.  
 Wilkinson, Miriam.  
 Wragg, Ethel.

*Passed in Part of the Examination.*

Bennett, Herbert (English, History IIIA, *Principal Philosophy, Subsidiary*).  
 Carr, Dorothy, Marguerite Olivia (French, *Principal*).  
 Cass, Leonard Vivian (French, Education, *Principal*);  
     Commerce and Economics, *Subsidiary*).  
 Clapham, Maude Marion (History II, *Principal*).  
 Dance, Marguerite Deborah Seton (Botany, *Principal*).  
 Daniels, John Henry (Ancient History, *Principal*).  
 Johnson, Ethel Beatrice Mary (German, *Principal*;  
     French, *Subsidiary*).  
 Jones, Samuel John (History IIIA, *Principal*).  
 Kite, John Clarence (English, History IIIA, *Principal*;  
     Latin, *Subsidiary*).  
 Leach, Winifred (History IIIA, *Principal*).  
 Lerrigo, John Henry (Latin, French, *Principal*; History  
     IIIA, *Subsidiary*).  
 Maxwell, Florence Evelyn (Latin, French, *Principal*;  
     English, *Subsidiary*).  
 Moreton, Frank Edward (Education I).  
 Newman, Winifred Lilian (English, History II, *Principal*).  
 Poolton, Ada Lucy (French, *Principal*; History IIIA,  
     *Subsidiary*).  
 Rainsford, Gladys Ada (Latin, English, French, *Principal*).  
 Ray, Myrtle Matilda (Education II, *Principal*).  
 Reeve, Mabel Gladys (English, French, German, *Principal*).  
 Saunders, Constance Dorothy (Latin, English, Botany,  
     *Principal*).  
 Wood, Dorothy (English, French, *Principal*; History  
     IIIA, Psychology, *Subsidiary*).

Two Year Students eligible for Degree after a further year's attendance at the University.

DIVISION I.

Mackintosh, Charles Hubert (Distinction in Latin and English).  
Williams, Clara Annette (Distinction in French).

DIVISION II.

Barker, Gladys Mary.  
Ferrario, Marie Therese.  
Lines, Leslie.

III.—Degree of Bachelor of Music.

Godfrey, Harold Graham.

IV.—Second Examination in the Honour School of Classics.

DIVISION I.

Sherlock, Helen Travers.

V.—Second Examination in the Honour School of English.

DIVISION I.

Chaloner, Nora Irene.  
Gibbons, Florence.

VI.—Second Examination in the Honour School of Modern Languages.

DIVISION II.

Thomas, Bertha Pemberton.

VII.—Second Examination in the Honour School of History.

DIVISION I.

Davies, Eulalie Mabel.

DIVISION II.

Sweetinburgh, Florence Ellen.

**VIII.—Second Year Arts Examination.**

- Bailey, Hilda Muriel (English, French).  
Barnard, Clara Lilian (Latin, English, French, Botany).  
Botterill, Eva Mary (English, French, Education I).  
Carr, Dorothy Marguerite Olivia (Latin, English, British Institutions).  
Cass, Leonard Vivian (Education I).  
Catlow, Helen Muriel (Latin, English, French, German, Philosophy).  
Clapham, Maude Marion (British Institutions).  
Commander, Gladys Norman (Latin, French, Education I).  
Crump, Gwendoline (Latin, English, Education I).  
Docherty, Susan Janet (Latin, French, Philosophy).  
Dutton, George Bernard Newman (Latin, French, Pure Mathematics).  
Follows, Annie Hilda (Latin, English, French).  
Goldstraw, Edwin Walter (Latin, French).  
Greenwood, Gladys (Latin, English, Education I).  
Grove, George (British Institutions, Education I).  
Harris, Lucy (Latin, French, Education I.)  
Harriss, Irene Vernon (Education I).  
Haselden, Annie (Education I).  
Hutchin, Doris (Latin, French).  
Jackson, William Hickin (Latin, English, French, Education I).  
Jeyes, Olive, (Latin, French, German).  
Johnson, Ethel Beatrice Mary (English, French).  
Jones, Mary Aline (Latin, English, Pure Mathematics).  
Lloyd, Nora Dean (Latin, English, Botany.)  
Maxwell, Florence Evelyn (English).  
McLaren, Dora (Latin, English, French, Education I).  
Midgley, Charles William (Latin, English, French, Pure Mathematics.)  
Moreton, Frank Edward (Education I.)  
Nicholls, Esmond Hubert Lawson (Latin, English, French, Ancient History, Education I).  
Osborne, Hilda Bessie Rosa (Latin, English, French, Botany).  
Osborne, Philip John (Latin, French, Education I).  
Payne, Alice (Latin, French, Pure Mathematics, Education I.).  
Pelton, Sibyl Ingram (Latin, British Institutions).  
Platt, Muriel Grace (Pure Mathematics, British Institutions, Education I.)  
Poole, Marion (Latin, English, French, History IIIA).  
Powell, Elsie Gladys (Latin, French).  
Poxon, Lydia (Latin, English, French, Education I).  
Riley, Evelyn Mary (Latin, English, French, Pure Mathematics).

- Roe, Frederick Charles (Latin, English, French, Education I.).  
 Sarjeant, Douglas Leslie (Latin, English, French, Education I).  
 Seal, Ada Mary (Latin, English, French, History IIIA).  
 Speller, Naomi (English, Philosophy, Education I).  
 Stevens, Constance Miriam (English, French, Education I).  
 Tomlinson, Mabel Elizabeth (Latin, English, French, Pure Mathematics).  
 Turner, Esther Marguerite (Latin, English, French, Botany).  
 Wrigley, Dorothy (Latin, English, French, Education I).  
 Wrigley, Edward Ernest (English, German, Philosophy, Greek).  
 Young, Dorothy (British Institutions, Education I).

### IX.—Intermediate Arts Examination.

#### (a) *Internal Candidates.*

##### DIVISION I.

- Bishop, Edgar William.  
 Boone, Gladys.  
 Cooper, Ada.  
 Druller, Isabel Daisy.  
 Goode, James.  
 Hale, Edith Mary.  
 Hipkins, Gladys.  
 Lewis, Wilfrid Edwin.  
 Lewis, Greville Priestley.  
 Mole, Constance Mary.  
 Witty, Douglas.

##### DIVISION II.

- Calway, Mary.  
 Deilow, Janet Mary.  
 French, Edith Helen.  
 Greaves, Helen Marjorie.  
 Guest, Aubrey Ward.  
 Haddock, Arthur.  
 Hothersall, Hubert.  
 Ketelbey, Doris Mabel.  
 Lucas, Christopher Hollins.  
 Morris, Rebecca Emily.  
 Wightman, Evelyn Miriam.  
 Yates, Esther.

#### *Completed the Examination.*

- Cass, Leonard Vivian.  
 Kite, John Clarence.  
 Osborne, Philip John.  
 Poolton, Ada Lucy.  
 Stevens, Constance Miriam.

*Passed in Part of the Examination.*

- Ault, Mary Kathleen (English, Logic, European History).  
 Bertram, Edith (English, French, European History).  
 Brettell, William Percy MacDuff (Latin, English, Mathematics, Geography).  
 Green, Alice Amy (English, French, Botany).  
 Kershaw, Eveline (English, French, Mathematics).  
 Keyte, Beatrice Margaret (Latin, French, Mathematics, Botany).  
 Lightowler, Hilda (Latin, English, French, European History).  
 Lovestone, Miriam Zipporah (Latin, French, Mathematics, European History).  
 McIntosh, Emma Russell (Latin, English, French, European History).  
 Mundey, Pattie (Latin, English, French, Logic).  
 Overend, Margaret Winifred (English, French, Botany).  
 Perrett, Arthur Joseph (Latin, English, Mathematics, European History).  
 Pryor, Gwendoline Marjorie (English, French, European History).  
 Sears, Harold George (English).  
 Simmons, Mabel (Latin, English, Mathematics, Geography).  
 Smith, Nina (Latin, English, French, European History).  
 Smith, Doris Eliza (Latin, English, French, Geography).  
 Stewart, Peter (English, French, Mathematics, European History).  
 Taunton, Margarita Frances Sarah (English, French, Geography).  
 Taylor, Marjorie Hall (European History).  
 Wastell, Marjorie (Latin, English, French, European History).  
 Wilkes, Lucy (English, French, Mathematics, European History).

*(b) External Candidates.*

## DIVISION I.

Mountford, James Frederick, West Bromwich Municipal Secondary School.

## DIVISION II.

Kay, Edith Mary, George Dixon Secondary School.  
 Illing, Annie Eleanor, Waverley Road Secondary School.

*Completed the Examination.*

Benwell, Reginald Barnett, Sutton Coldfield Grammar School.

**X.—First Examination in the Honour School of Modern Languages.**

*Passed in Part of the Examination.*

Wayne, Philip Arthur (French, German).

**XI.—First Examination for the Degree of B.Mus.**

Ehrhardt, Dorothy Agnes Alice.

**XII.—Secondary Teachers' Diploma Examination.**

Ayrton, Agnes Clarissa.  
 Hunt, Elsie Maud Caruthers.  
 Jabavu, Davidson.  
 Peaty, Mary Josephine.  
 Robinson, Harriett May.  
 Taylor, Herbert William.  
 Thompson, Herbert John.  
 Walker, Evelyn Agar.

*Passed in Part of the Examination.*

Knowles, Frederick (Practical).

**SUPPLEMENTARY EXAMINATIONS.**

SEPTEMBER, 1913.

**I.—Degree of Bachelor of Arts.**

*Completed the Examination.*

Adams, May Dorothy.  
 Hart, Grace Mary.  
 Robinson, Harriet May.  
 Walker, Evelyn Agar.

*Passed in part of the Examination.*

Fullwood, Florence Kathleen (French, *Subsidiary*).  
 Tosh, Fannie Helen (History IIIA., *Subsidiary*).

**II.—Second Year Arts Examination.**

Amiss, Winifred Helen (Latin).  
 Bracey, Bertha Lillian (History II).  
 Frew, Margaret Annie (Latin).  
 Harrison, Arthur Cyril (Latin).

- Harriss, Irene Vernon (Latin).  
 Johnson, Ethel Beatrice Mary (Latin).  
 Lardge, Florence Mabel (Latin, History II).  
 Marshall, Hazel (Latin, History II).  
 Maxwell, Florence Evelyn (French).  
 Newman, Winifred Lilian (Latin, English).  
 Pearson, Edgar McCully (Latin).  
 Prosser, Catherine Lavinia (English).  
 Ray, Myrtle Matilda (Latin).  
 Reeve, Mabel Gladys (Latin, English).  
 Sadler, Dorothy (Latin).  
 Southerton, Laurence Cyril (Latin).  
 Walker, Evelyn Agar (Latin).  
 Wood, Dorothy (Latin, French).  
 Wrigley, Edward Ernest (Logic).

### III.—Intermediate Arts Examination.

#### (a) INTERNAL CANDIDATES.

##### *Division II.*

Pelton, Sibyl Ingram.  
 Platt, Muriel Grace.

##### *Completed the Examination.*

Barnard, Clara Lilian.  
 Crump, Gwendoline.  
 Daniels, John Henry.  
 Follows, Annie Hilda.  
 Gibbons, Margaret Elizabeth.  
 Goldstraw, Edwin Walter.  
 Grove, George.  
 Lloyd, Nora Dean.  
 Payne, Alice.  
 Powell, Elsie Gladys.  
 Poxon, Lydia.  
 Robins, Valeria Letitia.  
 Tomlinson, Mabel Elizabeth.  
 Whitehead, Annie Marguerita.  
 Wood, Dorothy.  
 Young, Dorothy.

##### *Passed in Part of the Examination.*

Drake Winifred May (Logic).  
 Dow, Frank Willard (English, French, Mathematics).  
 Flavell, Marion (Logic).  
 Newill, Elsie Vaughan (English, French, Logic,  
     Geography).  
 Sears, Harold George (Latin, French, Mathematics).  
 Whitehouse, Bertha (English, French, Mathematics,  
     Geography).

## (b) EXTERNAL CANDIDATES.

*Completed the Examination.*

Marson, Eric Newton (*King Edward's School, Aston*).  
 Woodhouse, Amelia (*Halesowen Grammar School*).

*Passed in Part of the Examination.*

Osborne, Philip John (*King Edward's School, Birmingham*) (Latin, English, French, Mathematics).

## IV.—Entrance Examination to School of Modern Languages.

*Completed the Examination.*

Wayne, Philip Arthur.

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## FACULTY OF MEDICINE.

---

JUNE, 1914.

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## I.—Degree of Doctor of Medicine.

Assinder, Eric Walter.

## II.—Degrees of Bachelor of Medicine and Bachelor of Surgery.

## CLASS II.

Abrahams, Reginald George.  
 Ashby, Elizabeth Labrey.  
 Richmond, Henry.  
 Roberts, Leslie Douglas.

## III.—Fourth Examination for the Degrees of M.B., Ch.B.

(*Forensic Medicine, Toxicology, Public Health, and Therapeutics.*)

## CLASS II.

Crosskey, John Henry.  
 Evans, Alice Muriel.  
 Gill, Koch Harry.  
 Jones, Eric Shirley.  
 Lees, Francis Charles.  
 Millington, Arthur David.  
 Thomson, Arthur Peregrine.  
 Turner, Gladys Maude.  
 Underhill, Eric.

*Passed in Part of the Examination.*

Donovan, Lillie Mary (Therapeutics and Hygiene).  
 Pinson, Raymond Fearle (Therapeutics and Hygiene).

*Completed the Examination.*

Brown, John Clifford.

**IV.—Third Examination for the Degrees of M.B., Ch.B.  
 (Pathology and Bacteriology and Materia Medica, and Practical Pharmacy).**

## CLASS I.

Rose, Baron Theodore.

## CLASS II.

Hughes, Oscar Cecil Lawrence.  
 Kerby, Theo Rosser Fred.  
 Newey, Frank.  
 Pinson, Raymond Fearle.  
 Smith, Arthur Cloudesley.  
 Staley, Robert James.  
 Standing, David Fox.  
 Steward, Sydney Tibbets.  
 Weston, John Theodore Spencer.

*Passed in Part of the Examination.*

Hartley, George Cleverdon (Materia Medica and Pharmacy).  
 Rudd, Charles (Pathology and Bacteriology).  
 Shufflebotham, Hilda Nora (Pathology and Bacteriology).  
 Spurway, Eustace Edgar Roberts (Materia Medica and Pharmacy).

**V.—Second Examination for the Degrees of M.B., Ch.B.  
 (Anatomy and Physiology).**

## CLASS I.

Mence, Harold George Victor.

## CLASS II.

Ash, Edwin Baylis.  
 Hall, Herbert William.  
 Hartley, Wilfrid Shaw.  
 Scott, James Jules Avit.  
 Sims, Carrie.  
 Taylor, John Lupton.  
 Walker, Hilda.

**VI.—First Examination for the Degrees of M.B., Ch.B.***(Physics, Chemistry, and Biology.)**Internal Candidates.***CLASS II.**

- Chattaway, Dorothy.  
 Cooksey, Gladys Mary.  
 Holden, Eric George Theodore.  
 Lamb, Francis William Mason.  
 Williams, Margaret Aileen.  
 Willis, Honor Margaret.

*Passed in Part of the Examination.*

- Ainscow, James Arthur (Physics and Biology).  
 Houghton, Katharine Frances Brierley (Chemistry and Physics).  
 Robertson, Agnes Annie Sloan (Chemistry and Biology).  
 Stanton, Doris Elsie Florence (Chemistry and Biology).  
 Turton, Alfred Howard (Chemistry and Biology).

*Completed the Examination.*

- Rennie, Dennis Charles.  
 Roth, Helen.  
 Sims, Carrie.

*External Candidate.***CLASS II.**

- Gittins, Robert John (King Edward's School, Birmingham).

**VII.—Degree of Master of Dental Surgery.**

- Wellings, Alfred William.

**VIII.—Third Examination for the Diploma in Dental Surgery.***(Anatomy, and Physiology and Dental Anatomy and Dental Histology.)**Completed the Examination.*

- Richards, Frederick Harold.

**IX.—First Examination for the Diploma in Dental Surgery.**

- Bloomer, Alan Charles.

**X.—Examination for Diploma in Public Health.****PART II.**

- Davies, Evan.

**SUPPLEMENTARY EXAMINATIONS.**

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SEPTEMBER, 1913.

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**I.—Fourth Examination for the Degrees of M.B. Ch.B.**

(*Forensic Medicine, Toxicology, Public Health, and Therapeutics.*)  
*Completed the Examination.*

Foley, John Edward.

Smith, Herbert.

*Passed in Part of the Examination.*

Brown, John Clifford (*Therapeutics and Public Health*)

**II.—Third Examination for the Degrees of M.B. Ch.B.**

(*Pathology and Bacteriology, and Materia Medica and Practical Pharmacy.*)

*Division II.*

Jones, Eric Shirley.

Millington, Arthur David.

Underhill, Eric.

*Completed the Examination.*

Crosskey, John Henry.

Turner, Gladys Maude.

**III.—Second Examination for the Degrees of M.B. Ch.B.**

*Division II.*

Graham, Reginald Portman.

Price, Ralph Brian.

Spurway, Eustace Edgar Roberts.

**IV.—First Examination for the Degrees of M.B. Ch.B.**

*Division II.*

Baird, Andrew Arthur Dering.

Dando, Geoffrey Wright.

Slim, Charles John.

*Completed the Examination.*

Ash, Edwin Baylis.

Starley, Bertram Allan.

*Passed in Part of the Examination.*

Rennie, Dennis Charles (*Chemistry and Biology*).

Roth, Helen (*Chemistry and Biology*).

**V.—Third Examination for the Diploma in Dental Surgery.**

Thornton, Harold Gordon Stewart.

DECEMBER, 1913.

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**I.—Examination for the Degree of M.D.**

Holden, Oscar Madeley.

**II.—Final Examination for the Degrees of M.B., Ch.B.**

*Class II.*

Humpherson, Elsie Mary.

**III.—Final Examination for the Diploma in Dental Surgery.**

Thornton, Harold Gordon Stewart.

**IV.—Second Examination for the Diploma in Dental Surgery.**

Richards, Frederick Harold.

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**FACULTY OF COMMERCE.**

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JUNE, 1914.

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**I.—Degree of Master of Commerce.**

(a) OFFICIAL.

Heaton, Herbert.

(b) ORDINARY.

Sanders, Thomas Henry.

**II.—Degree of Bachelor of Commerce.**

DIVISION I.

Brindley, Philip Sidney (*Distinction in Commerce, Accounting, Technique of Trade, Spanish*).

Lovesy, Harold Frederick (*Distinction in Accounting, French*).

DIVISION II.

Carter, Samuel.

Elliott, Norman Walter (*Distinction in Economics*).

Gower, Herbert George.

Waite, Frederick.

Westwood, Guy Bertram.

Whittall, William Gordon.

*Passed in Part of the Examination.*

- Dukes, Joseph Harmer (Commerce, Technique of Trade, Statistics, Italian).  
 Hsi, Te Mon (Technique of Trade).  
 Jalland, Herbert Henry (French, Public Finance).  
 Reicher, Casimir (Commerce, Technique of Trade, French).  
 Stamirowski, Januzs L. de (Accounting, Technique of Trade, Industrial Legislation, Economics, German).

**III.—Second Examination for the Degree of B.Com.****DIVISION I.**

- McGeoch, Alexander.  
 Oxenham, Herbert Charles (*Distinction in Transport, Economics*).

**DIVISION II.**

- Banwell, Clive.  
 Brampton, Charles Clifford.  
 Caleb, Clement Daryl Nicoll.  
 Chapman, Gordon William.  
 Horton, Charles Herbert.

*Completed the Examination.*

- Carter, Samuel (German).  
 Gower, Herbert George (German).  
 Whittall, William Gordon (Accounting).

*Passed in Part of the Examination.*

- Dukes, Joseph Harmer (Commerce, Commercial Law Italian).  
 Fox, Hugh Edward Mills (Commerce, Accounting, Transport, Economics, Commercial Law, German, Spanish).  
 George, Alan Lee (Commerce, Accounting, Transport, Economics, German, Spanish).  
 Hsi, Te Mon (Commerce, Accounting, Transport, Economics, Commercial Law).  
 Reicher, Casimir (Accounting, Transport, Economics).  
 Stamirowski, Januzs, L. de (French, Power Station).  
 Urmston, Frank (Commerce).

**IV.—First Examination for the Degree of B.Com.****DIVISION II.**

- Watanabe, Hideo.

*Passed in Part of the Examination.*

- Carritt, Henry William (Commerce, Accounting, General Economics, French, Psychology).
- Feitelson, Leon (Commerce, General Economics, French, German).
- George, Alan Lee (General Economics, Spanish).
- Hsi, Te Mon (Commerce, General Economics).
- Leheta, Mohammed Fahmy (General Economics, Spanish, History).
- Loverdos, Demetrius Spiros (Commerce, Accounting, General Economics, History, Italian).
- Ludford, Lawrence (Commerce, Accounting, General Economics, French, Spanish).
- Shelley, Kenneth Jack (Commerce, Accounting, General Economics, History).
- Stamirowski, Janusz L. de (General Economics, History, Italian).
- Urmston, Frank (German, Metallurgy).

**V.—Graduates' Commerce Diploma.**

Pettipher, Frank.

*Passed in Part of the Examination.*

- Crowther, Frederick Kenneth (Commerce, Accounting, Transport, Technique of Trade, Economics).
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**SUPPLEMENTARY EXAMINATION.**


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SEPTEMBER, 1913.

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**First Examination for the Degree of B.Com.***Completed the Examination.*

- Caleb, Clement Daryl Nicoll.  
Carter, Samuel.

## SOCIAL STUDY DIPLOMA EXAMINATION.

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JUNE, 1914.

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## Social Study Diploma.

Apps, Mildred Rosa.  
 Barrows, Lucy Adeline (*Distinction*).  
 Catchpool, Violet Ethelwyn Pettifor.  
 Edminson, Margaret Wiles.  
 Finnemore, Mabel.  
 Fitchett, Nora.  
 Goodman, Mary Kirsten.  
 Gordon, Agnes Isabel.  
 Innes, George Alexander (*Distinction*).  
 Jaeger, Irmgard.  
 Marsh, Jessie Victoria.  
 Powicke, Nancy Collyer.  
 Salaman, Elsie Esther.  
 Ward-Pearson, Nancy.  
 Wetherall, Ella Mary.

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## MATRICULATION EXAMINATION.

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JULY, 1914.

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## Class I.

AINSCOW, EDITH MARY	George Dixon Secondary School, Birmingham.
ASDELL, SYDNEY ARTHUR	King Edward's School, Five Ways.
BAILEY, GEOFFREY THOMAS	King Edward's School, Bir- mingham.
BAKER, CONSTANCE PHOEBE	King Edward's School, Bir- mingham.
BERRY, ELEANOR MARY	Waverley Road Secondary School, Birmingham.
BRADDON, PAUL COOPER CAMPBELL	Dulwich College.
COTTRELL, AMY HELEN	Birmingham Pupil Teachers' Central Classes.
DOMVILLE, GERALD GUY	Wellington College.
EVANS, HORACE WILLIAM	King Edward's School, Camp Hill.
FOULDS, EDITH	Waverley Road Secondary School, Birmingham.

HUTCHINSON, AYTON ROBERT WILLIAM	King Edward's School, Five Ways.
JACKSON, AGNES ANNIE	Waverley Road Secondary School, Birmingham.
JACOT, BERNARD LOUIS KEELING, JANET EMMA CREED	King Edward's School, Aston. Waverley Road Secondary School, Birmingham.
KEEY, WINIFRED	Waverley Road Secondary School, Birmingham.
KING, OLIVE WINIFRED	Birmingham Pupil Teachers' Central Classes.
LOWE, JOHN PERKINS, MABEL IDA	King Edward's School, Aston. King Edward's School, Hands- worth.
RICHARDS, MARY	George Dixon Secondary School, Birmingham.
SHERIFF, KENNETH STANTON, OLIVE MARY	Rugby School.
TASKER, MURIEL	King Edward's School, Hands- worth.
TYLER, FLORENCE MARY	King Edward's School, Bir- mingham.
WALDUCK, FREDERICK SELWYN WARD, FRANCES ELSIE	King Edward's School, Bir- mingham.
WHITWORTH, ABRAHAM BRUCE WILSON, MAUD ELIZABETH SUSANNA	Bromsgrove School.
WOOD, ALICE EMILY	George Dixon Secondary School, Birmingham.
	The Grammar School, Rugeley.
	King Edward's School, Bir- mingham.
	Birmingham Pupil Teachers' Central Classes.

## Class II.

ARCH, ERIC HENRY GOUGH	King Edward's School, Camp Hill.
BALL, JOHN WALDER	King Edward's School, Camp Hill.
BARNARD, GUY CHRISTIAN BARROW, FRANK LESLIE	Bromsgrove School.
BEDDIS, FREDERICK JOHN BEDDOWS, LUCIE ISABEL	King Edward's School, Five Ways.
BEDNALL, AMY EUNICE	The Grammar School, Rugeley.
BOURNE, EVELYN CLARA	Birmingham Pupil Teacher's Central Classes.
	Birmingham Pupil Teachers' Central Classes.
	Birmingham Pupil Teachers' Central Classes.
	Birmingham Pupil Teachers' Central Classes.

BRETT, GLADYS ANN	Girls' Secondary School, King's Norton.
BROOMHALL, CYRIL	King Edward's School, Aston.
BROWN, ELLIOTT FRASER	Monkton Combe School, Bath.
BURGESS, FLORENCE ADA	Technical School, Erdington.
BUTCHER, GEOFFREY RAYMOND	Private Tuition.
CLADISH, FLORENCE ELIZABETH	Waverley Road Secondary School, Birmingham.
COWMEADOW, GLADYS ELEANOR	Birmingham Pupil Teachers' Central Classes.
COX, RALPH HOLDEN	King Edward's School, Camp Hill.
CRAIG, HILDA MARY	King Edward's School, Handsworth.
CROOKE-ROGERS, GEORGE HENRY CHESSWAS	King Edward's School, Birmingham.
CRUXTON, CHARLES LEONARD	King Edward's School, Camp Hill.
CURLE, VICTOR	King Edward's School, Birmingham.
FROST, LENA WINIFRED	Private Tuition.
GILLARD, FRANCIS WALTER	Private Tuition.
GLAZEBROOK, JOHN FARRER	Monkton Combe School, Bath.
GORDON, JAMES WILLIAM NUGENT	University of Birmingham.
GRIFFIN, BERNARD LAWRENCE	St. Phillip's Grammar School, Birmingham.
HAHN, WILHELM EDGAR	University of Birmingham.
HAWKES, DORIS MAY	King Edward's School, Birmingham.
HILL, WINIFRED NAOMI	Birmingham Pupil Teachers' Central Classes.
HOWLE, STANLEY TALBOT	King Edward's School, Camp Hill.
HUGHES, DOUGLAS DUNCAN	King Edward's School, Aston.
HUNT, WINIFRED IRENE	Private Tuition.
JACKSON, CLARA ELIZABETH	George Dixon Secondary School, Birmingham.
KING, WINIFRED MARGARET	King Edward's School, Handsworth.
KIRKBY, DAVID	Waverley Road Secondary School, Birmingham.
LAMBSDOWN, ELSIE IRENE	King Edward's School, Handsworth.
LEK, NAI	Private Tuition.

MACDONALD, LILIAN ANNIE MAY	George Dixon Secondary School, Birmingham.
MAGUIRE, CYRIL CHARLES WILLIAM	St. Phillip's Grammar School, Birmingham.
MONCUR, GEORGE	King Edward's School, Bir- mingham.
NORTH, ELSIE BEATRICE	King Edward's School, Hands- worth.
PROBYN, MARION	Birmingham Pupil Teachers' Central Classes.
ROBERTSON, MURIEL MARY	Edgbaston High School.
SAUNDERS, SIDNEY ROBERT	King Edward's School, Camp Hill.
SILK, CONSTANCE EMILY	Birmingham Pupil Teachers' Central Classes.
SMITH, EDITH	King Edward's School, Hands- worth.
SMITH, GWENDOLINE VICTORIA	Waverley Road Secondary School, Birmingham.
SNAPE, LESLIE JAMES	King Edward's School, Five Ways.
SOUTHERTON, LESLIE CHARLES	Waverley Road Secondary School, Birmingham.
SPIERS, SIDNEY CLIFFORD	King Edward's School, Aston.
SUTTON, GERTRUDE	Birmingham Pupil Teachers' Central Classes.
TAYLOR, ROBERT JOSEPH	St. Phillip's Grammar School, Birmingham.
THORNTON, GIFFORD CAMPION	Dean Close School, Cheltenham.
TIDMUS, JOHN STANLEY	King Edward's School, Camp Hill.
TURNER, CRESSWELL	King Edward's School, Bir- mingham.
WEAKE, WINIFRED MABEL	Waverley Road Secondary School, Birmingham.
WITHERS, ERIC MARSH	King Edward's School, Aston.
WOOLCOCK, FRANCES OLIVE	Birmingham Pupil Teachers' Central Classes.

## SENIOR SCHOOL CERTIFICATE EXAMINATION.

## Class II.

KING, LESLIE PHILIP

King Edward's School, Camp  
Hill.

## MATRICULATION EXAMINATION.

—  
SEPTEMBER, 1913.  
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## Class I,

Calway, Mary	King Edward's School, Birmingham.
Ehrhardt, Dorothy Agnes Alice	Private Tuition.
Oakden, Ellen Catherine	Private Tuition.
Vaughton, Mildred Ida	King Edward's School, Birmingham.

## Class II.

Bellamy, Cuthbert William	King Edward's School, Five Ways.
Dumbleton, Joseph Edgar	Handsworth Grammar School.
Feitelsohn, Leon	Private Tuition.
Gadsden, Winifred Pansy Marguerite	Birmingham Pupil Teachers' Central Classes and Private Tuition.
Jones, Frederick Benjamin	King Edward's School, Birmingham.
Kirby, Walter	Private Tuition.
Mills, Clarissa Edith	King Edward's School, Birmingham.
Pelton, Kenneth Kemble	Dover College, and Private Tuition.
Perrett, Basil Leslie	King Edward's School, Birmingham.
Reeve, Lily	University of Birmingham.
Smith, Nina	Worcester High School.
Thomas, Alfred Llewelyn	Private Tuition.
Thomas, Robert Stanley	Private Tuition.
Turner, Thomas Leonard	Waverley Road Secondary School, Birmingham.
Wood, Alva	Birmingham Pupil Teachers' Central Classes.

## SCHOLARSHIPS.

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### University.

- 1901 Richard Thomas Francis Kirk  
Percy Phillips.
1902. Onera Amelia Merritt.  
Douglas Frank Twiss.  
Winifred Lee.
1904. Arthur Hubert Cox.
1905. Mary Louise Bleby.  
Jacques Katz.  
Arthur Wellesley Butler.
1906. Archibald John Mason-Jones.  
Clara Emily Sylvester.  
Wilfred Severne Ashley.  
Percy Norman Loveridge.
1907. George William Todd.  
Richard Henry Whitehouse.  
Lilian Emily Fitter.  
Editha Helena Jennings.
1908. Elizabeth Acton.  
Tom Goodey.  
Benjamin Millard Griffiths.  
Agnes Isabel Craig.  
Ernest Frederick Morris.
1909. Ernest Bryan Adams.  
Olive Eleanora Hood.  
Leslie Herbert Lampitt.  
Dorothy Crew.  
Francis Edward Jope.  
Kathleen Nora Toy.
- 1910 Ethel Maud Poulton.  
Marguerite Anna Cox.  
Marjorie Elizabeth Day.
1911. Henry Thomas Flint.  
Henry Harold Stirrup.  
Thomas Alexander Baggs.  
Raymond Gibbs Rainsford.  
Lizzie Louise Ross.

1912. Ada Maria Finney.  
 Frederick Joseph Meggitt.  
 John Bourne Coates.  
 Reginald William Hartland.
1913. Tom Archibald Beardsmore.  
 Frederick Horace Garner.  
 Frederick Joseph Meggitt.  
 Horace Alsop.  
 Dora Gwendoline Cope.
1914. Charles William Lowe.  
 Charles Edmund Wood.  
 Mabel Kathleen Ashby.  
 Florence Mary Pither.

### Research.

1902. Percy Phillips.  
 Margaret Mellard Hawkes.  
 Henry Thomas.  
 Caroline Edith Morgan.
1903. Percy Phillips.  
 William Ernest Stephen Turner.  
 Frank Ernest Willcox.  
 Winifred Lee.
1904. Augustus Daniel Imms.  
 William Ernest Stephen Turner.
1905. Francis William Aston.  
 Ethel Mary Reader Wood.
1906. Francis William Aston.  
 Evelyn Marion Hickmans.  
 Mary Louise Bleby.
1907. Clara Emily Silvester.  
 Frederick Stoward.
1908. Alfred John Grove.  
 George William Todd.  
 Richard Henry Whitehouse.  
 Wilfred Severne Ashley.
1909. Elizabeth Acton.  
 Tom Goodey.  
 Alfred John Grove.

1910. Elizabeth Acton.  
           Leslie Herbert Lampitt.  
 1911. Gilbert Ernest Johnson.  
           Henry Edgar Smith.  
           Frank Percy Wilson.  
 1912. John Wilfred Parkes.  
           Henry Harold Stirrup.  
           Lizzie Louise Ross.  
           Frank Percy Wilson.  
 1913. Ada Maria Finney.  
           Harold Archibald Scarborough.  
           Reginald William Hartland.  
 1914. Ruby Caroline Groves.  
           Elizabeth Acton.  
           Reginald William Hartland.  
           Rose, William.

**Heslop Memorial.**

1887. William Allport Brockington.  
 1889. John Nelson Wallis.  
 1891. Maud Elizabeth Ward.  
 1893. George Wilfred Samson.  
 1895. Edward William Winckle.  
 1897. Frederick John Marrian Stratton.  
 1899. Egbert Hockey Magson.  
 1900. Egbert Hockey Magson.  
 1901. John Monkhouse Orwin.  
 1903. Robert Viner Stanford.  
 1905. Harold Richard Norton.  
 1907. Arthur Cuthbert Tunstall.  
 1909. Laurence Herbert Kay.  
 1911. Graeme Hopkins.

**John Corbett.**

1895. Willie Hutt.  
 1896. Arthur James Barnett.  
 1897. John Frame.  
 1898. Ernest Gold.

- 1899. Frederick John Marrian Stratton
- 1900. Jacques Katz.
- 1901. Jacques Katz.
- 1902. David Wallace Plant.
- 1903. William Frederick Warth.
- 1905. George Wilfrid Acland Green.
- 1906. Sydney William Ledbrook.
- 1907. Ernest William Bliss.
- 1908. Percy Henry Iles.
- 1909. Sydney Hanford.
- 1910. Henry Thomas Flint.
- 1911. Herbert Arthur Jones.
- 1912. Tom Archibald Beardsmore.
- 1913. Graeme Hopkins.
- 1914. John Scobell Boissier.

#### Theodore Mander.

- 1903. Evelyn Marion Hickmans.
- 1904. Ethel May Doughty.
- 1907. Albert Joseph Tonkinson.
- 1910. Thomas Harold Reade.
- 1913. Allan Wyndham Lloyd Davies

#### Priestley in Chemistry.

- 1895. Thomas Stewart Patterson.  
Thomas Slater Price.  
William John.
- 1896. Frederick Malcolm Wharton.  
John McCrae, Jun.  
John Harger.
- 1897. Henry Aston.  
Edward Daniel Mason.  
Arthur Lathwood.
- 1898. Henry Leonard Heathcote.  
Robert Howson Pickard.  
Bertram Vincent Storr.
- 1899. Clarence James Green.  
Arthur Thomas Etheridge.  
Arthur Slator.

1900. Arthur Slator.  
Robert Crosbie Farmer.  
Samuel Andrews.  
John Alexander Lloyd.
1901. Norman Leslie Gebhard.  
Caroline Edith Morgan.  
Mary Beatrice Thomas.  
Fred John Warth.
1902. Norman Leslie Gebhard.  
Ernest Ormerod.  
John Albert Newton Friend.
1903. Fred Barrow.  
Edward Done.  
Douglas Frank Twiss.
1904. Fred Barrow.  
Edward Done.  
Herbert Bryan Thompson.
1905. Fred Barrow.  
Arthur Hubert Cox.  
Robert Viner Stanford.
1906. Ethel Parry.  
Robert Viner Stanford.  
Charles Gordon Smith.
1907. Harold Newton Lowe.  
Ethel Parry.  
Charles Gordon Smith.
1908. Arthur Ernest Everest.  
Herbert Hawley.  
Harold Newton Lowe.
1909. George Davidson Elsdon.  
Arthur Ernest Everest.  
Herbert Hawley.
1910. Clement William Bailey.  
Sydney Raymond Carter.  
Arthur Ernest Everest.  
Henry Edgar Smith.

1911. Clement William Bailey.  
 Sydney Raymond Carter.  
 William Edward Garner.  
 Sydney Albert Brazier.  
 1912. William Edward Garner.  
 George King.  
 Henry Turner Lea.  
 Stanley Smith.  
 1913. Harry William Webb.  
 Edwin Sidney Hawkins.  
 Horace Leslie Crowther.  
 Bertrand Turner.  
 1914. Frederic Horace Garner.  
 Harry William Webb.

### Bowen in Engineering.

1895. William George Hibbins.  
 1896. Blamey Stevens.  
     William Arthur Taylor.  
     William George Hibbins.  
 1897. James Patrick Wood.  
 1898. Alfred Ayre Mellor.  
     Samuel Benjamin Priest.  
     James Patrick Wood.  
 1899. Douglas Howard Bishop.  
     John Ernest Jagger.  
 1900. John Ernest Jagger.  
 1901. Richard Percival Hulse.  
     Connel William Long Alexander  
     Harry Bryant Matthews.  
 1902. Harry Bryant Matthews.  
     John Keats Catterson-Smith.  
 1903. John Keats Catterson-Smith.  
     John Walter Fidoe.  
 1904. Alfred William Lamourne.  
 1905. Alfred William Lamourne.  
     Thomas Sylvanus Pipe.  
     *Ernest William Heathcote.*

1906. Thomas Morgan Barlow.  
 William Ernest Fisher.
1907. Noel Wilson Greenway.  
 Lawrence William Kershaw.
1908. Edgar Alfred Allcutt.  
 Frederic Henry Reakes Lavender.  
 Randolph Douglas Gifford.
1909. John Henry Asdell.  
 Percival William Villiers.
1910. Henry Denzil Lobley.  
 Barry Ottewell.
1911. Victor Hugh Adams.  
 Sydney Hanford.  
 Horia Ioan Nadejde.
1912. Frank Leslie Morgan.  
 Frank Trevor Wilkins.
1913. Oswald Hubert Crowther.  
 Arthur Ulric Zimmerman.
1914. Cyril Henry Marshall King.  
 Cyril John Lyth.

### Bowen in Metallurgy.

1895. George Parker Royston.
1896. George Parker Royston.
1898. Harry Westwood Waldron.
1899. Harry Westwood Waldron.  
 Henry Julius Salomon Sand.
1900. Henry Julius Salomon Sand.
1901. Leo John Longstaffe.
1902. Joseph Herbert Colley.
1903. Thomas William Picken.
1904. Thomas William Picken.
1905. Frederick Dudley Simpson.
1906. Gilbert Shaw Scott.
1907. Joseph Lawton Dixon.
1908. Myles Thornton Murray.  
 Arthur Hague.
1909. Donald Ewen.

- 1910. Paul Theodor Bruhl.
- John Cartland.
- 1911. George Wesley Austin.
- 1912. John Harold Chamberlain.
- 1913. William Ernest Thorneycroft.
- 1914. Arthur John Field.

### 1851 Exhibition Scholarship

- 1891. John Joseph Sudborough.
- 1892. Lionel Simeon Marks.
- 1893. Arthur Lapworth.
- 1895. Robert Howson Pickard.
- 1896. Thomas Slater Price.
- 1897. Gilbert Arden Shakespear.
- 1898. Arthur Henry Reginald Buller.
- 1899. Henry Leonard Heathcote.
- 1900. Frank Horton.
- 1901. Arthur Slator.
- 1902. John Alexander Lloyd.
- 1903. Norman Leslie Gebhard.
- 1904. Percy Phillips.
- 1905. Augustus Daniel Imms.
- 1906. Fred Barrow.
- 1907. Ernest Ansley Watson.
- 1908. Frederick Stoward.
- 1909. George William Todd.
- 1910. Alfred John Grove.
- 1911. Arthur Ernest Everest.
- 1912. George Wesley Austin.
- 1913. William Edward Garner.
- 1914. Harold Archibald Scarborough.

### 1851 Exhibition Bursary.

- 1912. Charles Everard Thorne.
- 1913. Geoffrey Bernard Findon.
- 1914. James George Pearce.

## Ascough.

1905. Harold Newton Lowe.  
 1906. Arthur Dane.  
 1907. Horace George Evans.  
 1908. William Compton Till.  
 1909. William Edward Garner.  
 1910. Stanley Smith.  
 1911. Stanley Smith.  
 1912. Ruby Caroline Groves.  
 1913. Charles Frederick Allpress.  
 1914. Ernest Perry Bradley Wilson.

## Harding.

1903. Amy Helen Freeman.  
 1904. Montague Sydney Woolf.  
 1905. Amy Helen Freeman.  
     Montague Sydney Woolf.  
     Thomas Henry Adams.  
 1906. Amy Helen Freeman (*Travelling*)  
     Montague Sydney Woolf  
     Thomas Henry Adams.  
     Margaret Minna Green.  
     Bernard William Phillips.  
 1907. Montague Sydney Woolf (*Travelling*)  
     Thomas Henry Adams.  
     Margaret Minna Green.  
     Bernard William Phillips.  
     Mary Gildon Maddison.  
     Frank Theodore Smallwood  
 1908. Thomas Henry Adams (*Travelling*)  
     Margaret Minna Green.  
     Bernard William Phillips.  
     Mary Gildon Maddison.  
     Frank Theodore Smallwood.  
 1909. Margaret Minna Green (*Travelling*)  
     Mary Gildon Maddison.  
     Frank Theodore Smallwood.  
 1911. Edward Arthur Parker (*Travelling*).  
 1912. Laurence Herbert Kay (*Travelling*)

### George Henry Marshall.

1909. { Charles Dunsby.  
           { Edgar Ernest Piercy.  
 1910. Dorothy Marshall.  
 1914. James Frederick Mountford.

### Walter Myers Travelling Studentship.

1909. John Dale.  
 1910. Cranston Walker.

### Queen's.

1894. William Billington.  
 1895. Charles Henry Bullen.  
 1896. William Henry Wynn.  
 1897. Arthur Augustus Russell Green.  
 1898. Leonard Gregory Parsons.  
 1902. Mary Clarke.  
        Joseph Bernard Dawson.  
        Robert Beatson Dennis Hird.  
 1903. Leonard George Joseph Mackey.  
        Arthur Addison Sanders.  
        John Dale.  
 1904. Alfred Ernest Remmett Weaver.  
        Norman John Launcelot Rollason.  
        Frederick Wilkinson.  
        John Dale.  
 1905. Frederick Wilkinson.  
        Herbert Charles Horace Bracey.  
        James Fenton.  
        Mary Clarke.  
 1906. Humphrey Francis Humphreys.  
        John Dale.  
        James Fenton.  
        Arthur Addison Sanders.  
        Reginald Hudson Astbury.  
        Walter Rowland Southall Roberts.

1907. James Fenton.  
 John Dale.  
 Herbert Henry Sampson.  
 Oscar Madeley Holden.  
 1908 George Ernest Elkington.  
 Alan Ayscough Wilkinson  
 Cranston Walker.  
 Humphrey Francis Humphreys.  
 1909. Eric Walter Assinder.  
 Oscar Madeley Holden.  
 1910 George Ernest Elkington.  
 Oscar Madeley Holden.  
 1912 Leslie Douglas Roberts.  
 Koch Harry Gill.  
 1913. Baron Theodore Rose.  
 Leslie Douglas Roberts.  
 1914. Harold George Victor Mence.  
 Baron Theodore Rose.

**Sands Cox.**

1892. William Bird Herapath Wood.  
 1894. Herbert Charles Quirke.  
 1896. Michael Joseph Quirke.  
 1900. Claude Edward Tangye.  
 1901. Francis Brett Young.  
 1904. Humphrey Francis Humphreys.  
 1906. Evan Davies.  
 1909. Cecil George Teall.  
 1910. Raymond Fearle Pinson.  
 1913. Eric George Theodore Holden.

**Ingleby.**

1892. George Arthur Wilkes.  
 John Orton.  
 Francis Herbert Marson.  
 1893. Edward Geoffrey Walls.  
 1894. Frederic Gerald Messiter.  
 1895. Alexander Wathen Nuthall.

1896. Joseph George Emanuel.  
 1897. Harold Edward White.  
     John Aston Swindale.  
 1898. Charles York Flewitt.  
 1899. Harry Ellis Brown.  
     William Billington.  
     Ernest Frederick Wharton Bywater.  
 1900. Cyril Henry Howkins.  
 1901. William Henry Wynn.  
 1905. Frederick Wilkinson.  
 1906. Walter Rowland Southall **Roberts**.  
 1907. James Fenton.  
 1909. Walter Charles Blackham.  
 1910. Eric Walter Assinder.  
 1912. John Burman Lowe.  
 1914. Elizabeth Labrey Ashby.  
     Leslie Douglas Roberts.

**Dental.**

1894. Donald Amphlett.  
 1895. Charles Carey Wood.  
 1896. Cyril Henry Howkins.  
 1897. Robert William Griffin.  
 1898. Frank Smith Machin.  
 1899. Richard John James Hawkes.  
 1900. William Charles Retallack.  
 1906. Alan Ayscough Wilkinson.  
 1910. Frederick Harold Richards.  
 1911. Reginald Portman Graham.  
 1912. Wilfrid Shaw Hartley.

**Birmingham Chamber of Commerce.**

1907. Oliver Osmund Bill.  
 1910. Herbert George Gower  
 1913. Laurence Ludford.

**Sydenham.**

1913. Allan, Wyndham Lloyd-Davies

**Dudley and District Chamber of Commerce.**

1902. Thomas Henry Sanders.  
1903. Thomas Henry Sanders.

**Dudley Education Committee.**

1904. Thomas Henry Sanders.  
1909. Dorothy Mabel Cook.  
Dudley Shaw Newey.

**Walsall Chamber of Commerce.**

1903. Frederick Lawton.  
1904. Frederick Lawton.  
1905. Frederick Lawton.

**Sunderland.**

1904. Henry Ramsay Monro.  
1905. *Harold Ernest Mott.*  
William Henry Twigg.  
Francis Reginald Green.  
1907. *Harold Ernest Mott.*  
William Henry Twigg.  
1908. Lawrence Robert Dacre Anderson.  
1909. Herbert Henry Jalland.  
1910. Edmund Cecil Jacks.  
1913. Frank Pettipher.

**Wiggin Metallurgical Scholarship.**

1907. Arthur Hague.  
Frederick Johnson.  
1908. Leonard Parrington.  
Donald Ewen.  
1909. George Wesley Austin.  
Henry Ivor Coe.  
Clarence Richard Groves.  
1910. George Wesley Austin.  
Clarence Richard Groves  
John Leslie Haughton

1911. Douglas Heber Ingall.  
 John Harold Chamberlain.  
 1912. Frederick William Adams.  
     Geoffrey Bernard Findon.  
     Douglas Heber Ingall.  
 1913. John Basil Nevitt.  
 1914. Thomas Henry Turner.  
     Richard Henry Smith.

**William Cooke and Co. Scholarship.**

1910. Kenneth Neville Moss.

**University Entrance Scholarships.**

1911. Howard Henry Bagnall  
 May Barnes.  
 Ralph Garratt Bayliss.  
 Philip Sidney Brindley.  
 Arthur John Field.  
 Arthur John Hornby.  
 Harold George Mence.  
 James George Pearce.  
 Robert Arthur Witcomb  
 1912. Gladys Mary Barker.  
 Nellie Carter.  
 Richard Percival Cartwright.  
 Nora Irene Chaloner.  
 Asher Ansell Gross.  
 Cyril Alexander Frederick Hastilow  
 Francis Albert Reginald Hopkins.  
 Walter George Messenger.  
 Henry Spencer Powell.  
 Constance Dorothy Saunders  
 Gilbert Ernest Smith.  
 Florence Ellen Sweetinburgh  
 Clara Annette Williams  
 1913. Ernest Harold Callow.  
 Ernest Coupland  
 James Goode.  
 Wilfrid Joseph Hewitt

- Cecil Ernest Horton.
  - Hubert Hothersall.
  - George Leslie Hyde.
  - Arthur Frank Lerrigo.
  - Wilfrid Edwin Lewis.
  - Bernard Wilfrid Long.
  - Charles William Midgley.
  - Constance Mary Mole.
  - Marion Poole.
  - Edgar Austin Taylor.
  - John William Wesley Willstrop.
- 

## EXHIBITIONS.

## University.

- 1900. Joseph Bate Bridgwater Booth.  
Ella Winifred Douglas.  
Richard Percival Hulse.  
Frederick John Marrian Stratton.  
William Wingfield Longford.
- 1901. Ruth Marion Trigg Stanton.  
Ella Winifred Douglas.  
Fred Barrow.
- 1902. Fred Barrow.  
Edward William Tunbridge.
- 1903. Edward William Tunbridge.  
William Ernest Fisher.  
Daisy Mary Hood.  
Helena Mary Jennings.
- 1904. Ernest Ansley Watson.  
William Ernest Fisher.  
Edward William Tunbridge  
Mary Louise Bleby.  
Mary Eliza Beatrice Smith.  
Percy Norman Loveridge.  
Wilfred Severne Ashley.

1905. William Ernest Fisher.  
Ernest Ansley Watson.  
Sydney William Ledbrooke.  
Percy Norman Loveridge.  
Beatrice Hodder.  
Ethel Mary Silk.
1906. Hubert Frank Gunns.  
Sydney William Ledbrooke.  
Ernest Ansley Watson.  
Lilian Emily Fitter.  
Mary Grace Mills.
1907. Sydney William Ledbrooke.  
Edgar Algernon Cross.  
Bucchok Shen.  
Edith Beddows.  
Mary Grace Mills.  
William Thomas Bayliss.  
Frank Theodore Smallwood.  
Margaret Minna Green.
1908. Reginald Haydn Hopkins.  
George Christopher Marris.  
Barry Ottewell.  
Edgar Algernon Cross.  
John Keeling.  
Evelyn Mary Foster.
1909. John Ernest Cluley.  
Henry Denzil Lobleย.  
George Christopher Marris.  
Barry Ottewell.  
Else Mary Hiburd.  
Marguerite Anna Cox.  
Edward Arthur Parker.  
George Clement Hingley.
1910. Frederick Kenneth Crowther  
John Ernest Cluley.  
John Bourne Coates.  
Adeline Crutchley.  
Charles Dunsby.

- Alfred Edgar Niblett.  
 Edgar Ernest Piercy.  
 Arthur Norman Rose.  
 1911. Leonard Joseph Bladwell.  
 Oswald Hubert Crowther.  
 Dora Gwendoline Cope.  
 Edmund Fisher.  
 Eliza Mary Ann Barnes.  
 Mabel Nellie Bailey.  
 Laurence Herbert Kay  
 1912. William Hulse.  
 Cyril John Lyth.  
 Mark Bellison.  
 Dora Gwendoline Cope.  
 Edmund Fisher.  
 Wilhelmina Airston.  
 Mabel Nellie Bailey.  
 1913. Harry Spencer Powell.  
 William Hulse.  
 Helen Muriel Catlow.  
 Florence Mary Pither.  
 Florence Gibbon.  
 William Rose.  
 1914. Leslie Tiel Jordan.  
 Harold Ashley Daynes.  
 Greville Priestley Lewis.  
 Helen Muriel Catlow.  
 Florence Gibbons.

### Entrance.

1900. May Gertrude Bach.  
 Ruth Marian Trigg Stanton.  
 1901. Wilfrid Beaumont Ault.  
 Eleanor Hannah Roberts.  
 1902. William Ernest Fisher.  
 Edith Millicent Hill.  
 1903. Percy Norman Loveridge.  
 Ernest Ansley Watson.

1904. Edith Dora Bartindale.  
Lilian Emily Fitter.
1905. Edith Beddows  
Leslie Morris.  
*Christopher Edward Sonnenschein.*
1906. Elsie Myra Henningham.
1906. Winifred Jane Humpherson.
1907. Raymond Gibbs Rainsford.  
Percy Henry Iles.
1908. Sydney Albert Brazier.  
Philip Malcolm Kenwood.
1909. Alfred Joseph Brearley.  
Eliza Mary Ann Barnes.
1910. Edwin Sydney Hawkins.  
Herbert Arthur Jones.  
William Edward Smith.
1911. Edward Norman Gwynn Arkell.  
Tom Archibald Beardmore.  
Sydney Douglas Povey.
1912. Harold Ashley Daynes.  
Florence Gibbons.
1913. John Scobell Boissier.  
Doris Mabel Ketelbey.

#### Polytechnic Bursaries.

1903. Ettie Gertrude Holloway.  
Gertrude Emily Owen.
1906. Bertram Colgrave.  
Horace George Evans.
1909. Albert Edward Clarke.  
Lucy Ann Thompson.
1912. Clara Lilian Barnard.  
Hilda Bessie Rosa Osborne.

## PRIZES.

## Panton Geological.

1882. Walcot Gibson.  
 1883. Frederick John Cullis.  
 1884. Arthur Woodroffe Manton.  
     Charles William Hobley.  
 1885. Constance Caroline Woodhill Naden.  
     Walter Collingwood Williams.  
 1886. Marianne Mathews.  
     Joseph Landon.  
 1887. Marianna Mathews.  
     Joseph Landon.  
 1888. John Joseph Sudborough.  
 1889. Thomas Crosbee Cantrill.  
 1890. Emily Rosabel Jones.  
 1891. Arthur Percy Maddocks  
     Maurice Gesundheit.  
 1892. Nicholas George Gedye.  
 1893. Helen Sophia Lean.  
     Herbert Lapworth.  
 1894. Alfred Brown Ernest Blackburn  
     Thomas Goode Joyce.  
 1895. Mary Constance Lloyd  
 1896. Lizzie Edith Nazer.  
 1897. William Ernest Share.  
 1898. Douglas Howard Bishop.  
     William Henry Stacey  
 1899. Grace Martha Bauer  
 1913. Annie Patrick.

## Karl Dammann Memorial.

1891. Marianne Suckling.  
 1892. Charles Frederick Clapham.  
 1893. Violet Beatrice Marris.  
 1894. Anne Jane Marchant  
 1895. Ethel Grimley.

- 1896. Elsie Gertrude May.  
Jane Elizabeth Pemberton.
- 1897. Anne Katharine White.
- 1898. Edith Shufflebotham.
- 1899. Lizzie Orme.
- 1901. Margaret Mellard Hawkes.
- 1902. Winifred Lee.
- 1906. Amy Helen Freeman.
- 1907. Thomas Henry Adams.
- 1908. Margaret Minna Green.
- 1909. Frank Theodore Smallwood.
- 1910. Alfred Edgar Niblett.
- 1911. Laurence Herbert Kay.
- 1912. Wilhelmina Airston.
- 1913. William Rose.
- 1914. Philip Arthur Wayne.

### Ehrhardt Chemical Research.

- 1894. John Chilwell.
- 1895. Robert Howson Pickard.
- 1896. Thomas Slater Price.
- 1897. John McCrae.
- 1898. Henry Aston.
- 1899. Henry Leonard Heathcote.
- 1904. William Ernest Stephen Turner.
- 1909. Harold Newton Lowe.
- 1910. Arthur Ernest Everest.

### Bunce.

- 1901. Elsie Gertrude May.
- 1904. Mary Louise Bleby.
- 1906. Percy Norman Loveridge.
- 1907. Wilfred Severne Ashley.
- 1910. Lizzie Louise Ross.  
Frank Percy Wilson.
- 1911. Dora Gwendoline Cope.  
Mabel Nellie Bailey.

1912. Florence Mary Pither.  
 Gilbert Neville Goodman.  
 Dora Gwendoline Cope.  
 1913. Helen Muriel Catlow.  
 Arthur Cyril Harrison.  
 1914. Isabel Daisy Druller.  
 Ada Mary Seal.

#### Gladstone Memorial.

1903. Lewis Lloyd.  
 1904. Alfred Dudley Evans.  
 1906. *Harold Ernest Mott.*  
 1907. William Herbert Green.  
 1908. Austen Winfield Martin.  
 1910. *William Philip Caswell.*  
 1911. Claude Fox Naylor.  
 1912. Annie Ashley.  
 William Harold Johnson.  
 1913. Herbert George Gower.

#### Austin.

1904. William Ernest Fisher.  
 1905. Jacques Katz.  
 1906. Clara Emily Sylvester.  
 1907. Lilian Emily Fitter.  
 1908. Edith Beddows.  
 1909. Bucchok Shen.  
 1910. Harold Christopher Bates  
 1911. Ernest Stanley Whitworth  
 1912. George Edwin Rock.  
 1913. Sydney Douglas Povey.  
 1914. William Evan Ward.

#### Russell Memorial.

1892. Frances Herbert Marson.  
 Arthur James Martin.  
 1893. Harry Sinigar.  
 1894. *Frederic Gerald Messiter.*  
 1895. John Crisp Griffiths

- 1896. Edwin Charles Temple Smith
- 1898. Wilfred Henry Coltart.
- 1899. William Billington.
- 1901. William Henry Wynn.
- 1902. Frederic Barker.
- 1903. Leonard Gregory Parsons.
- 1904. Alfred Ernest Remmett Weaver.
- 1905. Thomas Charles Clare.
- 1907. Hilda Clark.
- 1908. John Dale.
- 1909. Herbert Henry Sampson.
- 1910. Cranston Walker.
- 1911. Oscar Madeley Holden.
- 1912. George Ernest Elkington.
- 1913. David John Evans.
- 1914. Leslie Douglas Roberts.

### William Richards.

- 1896. William Percy Nicol.
- 1898. Charles Henry Bullen.
- 1899. William Billington.
- 1903. Leonard Gregory Parsons.
- 1904. Alfred Ernest Remmett Weaver.

### Birmingham and Midland Scottish Society

- 1906. Melanie Sophie Forbes.
- 1908. Lilian Emily Fitter.
- 1909. Bertram Colgrave.
- 1910. *William Philip Caswell.*
- 1911. Lewis Lloyd.
- 1912. Consuelo Mary Annette Bosque de Reyes

### Churton Collins Prize.

- 1911. Raymond Gibbs Rainsford.
- 1912. Reginald William Hartland.
- 1913. Horace Alsop.
- 1914. Charles Hubert Mackintosh.

**Fiedler Prize.**

1909. Mary Gildon Maddison.  
1910. Edward Arthur Parker.  
1912. William Rose.  
1913. *No award.*  
1914. *No award.*

**Muirhead Prize.**

1909. Annie Eleanor Gill.  
1910. Marjorie Elizabeth Day.  
1911. Tryphena Mary Christabel Humphreys  
Arthur Norman Rose.  
1912. Consuelo Mary Annette Bosque de Reyes.  
1913. Muriel Jessie Preece.  
1914. Mabel Kathleen Ashby.

**Annie Deakin Prize.**

1910. Dora Gwendoline Cope.

**Sturge Prize.**

1911. Frank Theodore Smallwood.  
1912. *No award.*

**German Prize.**

1913. Philip Arthur Wayne.  
1914. Wilfrid Edwin Lewis.

**Kenrick Prize.**

1914. Edgar William Bishop.
-

**GOLD MEDALLISTS.****Heslop Memorial.**

1887. Constance Caroline Woodhill Naden.  
 1888. Ernest Francis Ehrhardt.  
 1891. John Joseph Sudborough.  
 1893. Lilian Evelyn Jenkyn-Brown.  
 1894. Frederick Daniel Chattaway.  
 1895. Thomas Crosbee Cantrill.  
 1896. Arthur Henry Reginald Buller.  
 1899. William Henry Wynn.  
 1900. Frank Horton.  
 1903. Leonard Gregory Parsons.  
 1904. Percy Phillips.  
 1905. Alfred Allen Brockington.  
 1906. Alfred Ernest Remmett Weaver.  
 1906. Connel William Long Alexander.  
 1907. Abdul Hafiz.  
 1908. Onera Amelia Hawkes.  
 1908. Emily Florence Grove.  
 1909. Edgar Alfred Allcutt.  
 1910. Harold Newton Lowe.  
 1910. Richard Henry Whitehouse.  
 1911. Venetta Lilian Taylor.  
 1912. Stanley Smith.  
 1913. Frank Leslie Morgan.  
 1914. Harry William Webb.

**Constance Naden Memorial.**

1890. Frederick Daniel Chattaway.  
 1892. Jessie Charles.  
 1893. Jane Elizabeth Pemberton.  
 1895. George Wilfrid Samson.  
 1897. William Henry Wynn.  
 1899. George Ernest Darlaston.  
 1909. Henry Thomas.  
 1912. Lizzie Louise Ross.  
 1913. Dorothy Marshall.  
 1914. Frederick Allen.

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Mr. H. G. Wood, M.A.

## THE GUILD OF UNDERGRADUATES.

*President*: HARRY W. WEBB, B.Sc.

*Vice-President*: MURIEL A. GOODWIN, B.A.

*Hon. Secretary*: H. W. EHRHARDT, B.Sc.

*Hon. Treasurer*: CEDRIC PORTWAY.

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The Guild is an organised association of the Undergraduates for the furthering of their common interests, which is provided for by the Charter of the University, and should be the recognised means of communication between the Undergraduates on the one hand, and the Court of Governors, Council and Senate on the other. For this purpose it may at any time petition or make representation to the Council or Senate of the University on any matter affecting the interests of the Undergraduates, while, in addition, the Guild has three Representatives on the Court of Governors with the privileges of full members.

The Guild also organises every year a number of social functions, and deals with inter-university undergraduates' business.

It publishes annually a Handbook containing information about Students' Societies and Clubs; the University Magazine—the *Mermaid*—is its official organ.

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## BIRMINGHAM UNIVERSITY ATHLETIC CLUB.

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*President* : THE VICE-CHANCELLOR.

*Vice-President* : PROFESSOR J. CADMAN, D.Sc., F.G.S.

*Hon. Secretary* : J. C. BROWN.

*Hon. Treasurer* : G. A. SHAKESPEAR, D.Sc.

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Membership of the Club is open to past and present members of the University of Birmingham, to past members of Mason College, and to past members of Queen's College, Birmingham. The entrance fee is five shillings There is no annual subscription.

All members of the Club are entitled to wear hatbands, scarves, and ties in the Athletic Club colours (red, blue, and black,) but not the "colours" blazer, nor the "colours" tie, etc., which are specially awarded.

The Club includes the following sections :—Rugby Football, Association Football, Cricket, Hockey, Tennis, Swimming, Golf, Boxing, Wrestling and Fencing, and Sports. No one is eligible to become a member of any section unless he has previously joined the Athletic Club. Each section is managed by its own Committee, which arranges the subscription and awards colours (these are subject to the approval of the Athletic Club Committee). The latter Committee consists of two representatives from each section, a President, Vice-President, Secretary, and Treasurer. The authorities allow the Athletic Club a certain sum, which is allotted to the various sections according to their needs.

The Athletic Ground is adjacent to the University Buildings at Edgbaston.

## BIRMINGHAM UNIVERSITY OFFICERS' TRAINING CORPS.

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### COMMITTEE OF MILITARY EDUCATION.

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MR. NEVILLE CHAMBERLAIN (*Chairman*).

THE VICE-CHANCELLOR.

THE PRINCIPAL.

THE VICE-PRINCIPAL.

THE SECRETARY.

THE DEAN OF THE MEDICAL FACULTY.

THE DEAN OF THE SCIENCE FACULTY.

MR. JOSEPH JAMES.

MR. W. W. BUTLER.

THE ADJUTANT OF THE CONTINGENT.

THE OFFICERS OF THE CONTINGENT

THE COMMANDING OFFICER, 5TH BATT. ROYAL  
WARWICKSHIRE REGT.

---

Under the auspices of this Committee, a contingent of the Officers' Training Corps has been established, particulars of which are given below.

Lectures on Military subjects will be delivered in the University from time to time.

**Officers' Training Corps.****BIRMINGHAM UNIVERSITY CONTINGENT.**CAPTAIN J. A. SEYMOUR, *Commanding.*

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The object of this Corps is to provide students and others with a standardised measure of elementary military training with a view to their eventually becoming officers in the Special Reserve of Officers or Territorial Force.

The Corps is under the direct control of the War Office.

Two Certificates (A and B) are awarded by the War Office, on the result of examinations, which are held half-yearly. These certificates entitle the holders to certain advantages and exemptions on taking commissions.

Parades and instruction are arranged so as not to interfere with lectures or general work.

Membership is not confined to the University, but is limited at the discretion of the Commandant.

Further particulars can be obtained from the Officer Commanding O.T.C. at the University, Edmund Street, with whom an appointment should be made.

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## APPENDIX.

### The Walter Myers Travelling Studentship.

#### D E E D

#### ESTABLISHING "THE WALTER MYERS TRAVELLING STUDENTSHIP FUND."

**This Indenture** made the 10th day of December 1901 between THE UNIVERSITY OF BIRMINGHAM (incorporated by Royal Charter on the 24th day of March 1900 and acting with the powers conferred upon them by the Birmingham University Act 1900 and hereinafter called "The University") of the first or one part and GEORGE MYERS of Thornfield Edgbaston in the City of Birmingham of the second or other part.

**Whereas** the said George Myers in order to promote original research by a Graduate of the Birmingham University and in memory of his only son Walter Myers M.A., M.B., B.C. of the University of Cambridge and B.Sc. of the University of London and a former student of the Mason University College of Birmingham who contracted yellow fever at Brazil while investigating the causes of such disease on behalf of the Liverpool School of Tropical Medicine hath proposed to give to the University of Birmingham the sum of £3,000 to be held by the University for the purposes hereinafter set forth. **Now therefore this**

**Indenture witnesseth** that in consideration of the sum of £3,000 paid to the Treasurer of the University on the day of the date hereof (the receipt of which sum the University do hereby acknowledge) the Birmingham University for themselves and their successors do hereby covenant with the said George Myers that the Birmingham University and their successors shall stand possessed of the said sum of £3,000 and the securities in which the same shall be from time to time invested and the accruing income of such investments upon the trusts and for the purposes hereinafter expressed and declared that is to say :—

1.—The University shall invest the said sum in any securities on which Trustees may for the time being be authorised by law to invest trust moneys.

2.—The said sum and the investments thereof shall be called and distinguished from the other moneys and investments of the University by the name of "The Walter Myers Studentship Fund" and the University shall at all times hereafter keep an account of this fund and the investments and income thereof separate and apart from the general or any other funds or accounts of the University.

3.—The University shall apply the income of the said investments in payment to the holder for the time being of a Studentship to be called "The Walter Myers Travelling Studentship" of the sum of £150 payable in advance by quarterly instalments such holder to be nominated and appointed each alternate year for one year only. Provided nevertheless that in the case of a student of exceptional merit and ability the University may allow such student to hold the scholarship for a second year but the sum payable to such student for the second year shall not exceed £90.

4.—In case in any year in which the Studentship is offered no candidate shall present himself or herself or in case no one of the candidates shall in the opinion of the hereafter mentioned Committee be of sufficient merit to be nominated the income of the Studentship shall be retained by the University and the Studentship offered again in the succeeding year and so on *toties quoties* until a candidate shall be nominated and appointed in manner hereinafter provided. In every case of suspension of the Studentship the income shall be invested and accumulated and if in any year the suspended income and its accumulation shall be sufficient then another Studentship may be awarded annually so long as the income will allow.

5. The University shall on or before the 10th day of July in each year in which the Studentship is offered advertise the conditions in two Medical Journals published

in London and in two newspapers published in Birmingham and shall also print a copy of these presents in the University Calendar in each year.

6.—The Studentship shall be awarded irrespective of sex sect or party but in the case of two applicants of equal merit a native of Birmingham shall have the preference.

7.—The merits of the candidate for the Studentship shall not be ascertained by the results of any form of competitive examination but by a Committee consisting of the following persons namely : The Dean of the Medical Faculty of the University and the Professors of Pathology and Chemistry in the University and the External Examiner in Pathology appointed by the University. The External Examiner shall be Chairman of the said Committee with an original and a casting vote and the Studentship shall not be awarded at any meeting unless the External Examiner is present. Subject as aforesaid the Committee shall ascertain the fitness of the candidate in such manner as they think proper and report to the Council as soon as possible after the first day of October in the year in which the Studentship is offered and the election shall then be made by the Council of the University.

8.—The Studentship shall be tenable at the University of Berlin Frankfort or Freiburg in Baden or at some University or Hospital not in Great Britain or Ireland appointed from time to time by the Council of the University on the recommendation of the Senate.

#### QUALIFICATION OF CANDIDATES.

9.—Every candidate for the Studentship must be  
(1) Under the age of thirty years at the date of his or her application and (2) a graduate of the Birmingham University and (3) must have attained the degree of M.B. in such University and the degree of B.Sc. in the University of Birmingham, or of London, Cambridge, or Oxford.

## CONDITIONS OF TENURE.

10.—The conditions of holding the Studentship shall be as follows :—

- (a) The holder shall engage in the study of Pathology in Berlin Frankfort or Freiburg or such other place of study not in Great Britain or Ireland as shall be appointed as provided by Clause 8.
- (b) In clinical work combined with pathological research at such Hospitals as the Council of the University on the recommendation of the Senate shall appoint either at Berlin Frankfort or Freiburg or at any other University or Hospital not in Great Britain or Ireland which may from time to time be approved of as aforesaid.
- (c) The student during the tenure of his or her studentship shall not systematically follow any business or profession or engage in any other work which in the opinion of the Council would interfere with his or her researches.

11.—In case the student shall publish in any way the results of his or her investigations during the studentship he or she shall where practicable describe himself or herself as the "Walter Myers Student" of the University of Birmingham.

**In witness** whereof the University hath hereunto set its seal and the said George Myers his hand and seal the day and year first aforesaid.

The Seal of the University of Birmingham  
was hereto affixed by the undersigned  
duly authorised by a resolution of the  
Council to affix such seal.

Seal of  
University.

F. C. CLAYTON.  
R. S. HEATH.

GEO. H. MORLEY,  
*Secretary.*

Signed sealed and delivered by the said  
George Myers in the presence of  
G. J. JOHNSON,  
Solicitor, Birmingham.

GEORGE MYERS (L.S.)

**FORM OF BEQUEST TO THE UNIVERSITY.**

—

I BEQUEATH the sum of £ , free of legacy duty, to the University of Birmingham. And I direct that the said legacy and the legacy duty thereon shall be paid exclusively out of such part of my personal estate as may by law be bequeathed for charitable purposes, and preferably to any other payment thereout. And I direct that the same legacy shall be paid to the Treasurer for the time being of the said University, whose receipt shall be an effectual discharge for the same, and that the same shall be applied \* [in the discretion of the Council of the said University to the general purposes thereof, or to such special purposes as the said Council shall determine].

NOTE.—If any special directions or conditions are to be attached to the legacy, the part in brackets to be omitted and the special matter inserted

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